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We Pin No Faith on Absorbents

By W. A. Rowland
Ontario

IN your December number, page 512, I read with interest the article on "Moisture Absorbents — Sealed Covers," and also on the next page "Outdoor Wintering."

Your ideas are so contrary to my practice here that I cannot refrain from giving my method. Generally winters here are long; bees confined for months without flight; temperature ranging from 15 below to 50 degrees above, with sudden changes. In some years, though not so frequently of late, there are continuous weeks of steady cold, and any system that will bring bees through 100 per cent under these conditions can hardly be wrong.

Referring first to your refusal to entertain the idea of sealed covers, and more particularly to the statement that since you have used absorbents you "have had very few losses in winter provided colonies are strong in bees with plenty of good honey."

I use sealed covers only, and I make the statement that colonies properly packed, with other factors right, result in no winter losses at all. Further, for years I have not lost a single colony in wintering outdoors.

The strength of the colony when packed does not matter so much, as those covering only four frames come through as well as stronger ones. I mean they all come out in the spring practically the same strength as when packed in the fall. A colony killed or weakened by wintering is something I do not have — nor ice nor dampness in the brood chamber—and the climate here is far colder than in Illinois.

Years ago, when starting with bees, I practiced putting bridges across the combs and on these bridges several thicknesses of burlap sacks, and over all ten or twelve inches of planer shavings, with two and one-half inches of shavings around the sides. There was upward ventilation in plenty and the result was weak colonies in the spring; some brood chambers so soaked with moisture from condensation that the paint was affected on the outside and moisture running out of the hive.

The cause was simple — lack of enough heat-retaining insulation, so the absorbent was of no benefit. I discarded that method years ago. Bees do not wish upward ventilation, but in early fall bring in quantities of propolis with which they stop up all cracks, even trying to coat the burlap over if it is applied early enough, so that they thus stop the loss of heat and eliminate draft.

I will make the definite statement that placing absorbents over a colony causes loss of heat; is unnecessary when the colony is properly packed, and is simply a crutch with which to carry a lame colony through winter—that is, a colony without adequate protection.

Let us take two colonies equal in all respects except that No. 1 has little packing, say tar paper (which is useless in this climate), over which absorbents have been placed. No. 2 has a sealed cover, except it has all around, under and over it a wall at least eight inches thick. We all agree that water vapor, caused by the consumption of honey, will be produced in both colonies and that the more honey is consumed the more vapor is given off.

Colony 1. On the arrival of zero weather, the walls being thin, the cold is felt quickly, the cluster forms, activity in heat production begins, with food consumption and resulting water vapor. The thinner the walls the faster heat escapes and the colder the hive gets, and so it follows that the bees work harder to produce heat, resulting in a large amount of moisture being generated.

If the absorbent above is compact, little heat escapes and a small part only of the vapor is taken up, but if the absorbent is porous the absorption increases in direct ratio, with the drawback, however, of increased loss of heat.

Then the time arrives when the production of moisture exceeds its absorption. Since the heat generated is confined practically all to the cluster, the unoccupied parts of the hive become cold and the moisture coming in contact with the walls freezes. Should the colony have the misfortune to be subjected to bitter cold winds, the condition is greatly aggravated, resulting in the death of a portion of the older bees and a lessening of the vitality of those remaining.

On the arrival of higher temperature, the ice melts, the moisture runs out the front, the absorbents being already damp and not able to carry it off. Each succeeding cold spell finds the colony weaker, less able to generate the necessary heat, resulting in the death of a greater part of the colony. The dead bees fall on the floor, where they are liable to block the entrance, the temperature within the hive being so low that the survivors are unable to carry them out.

Colony 2. In mild weather the usual heat generated, lost through the thin walls, is retained, some of it being absorbed and held by the thick walls. As a rule the colony is slightly warmer than necessary and through a continuous slow fanning the excess warmth is slowly passed out through the small ⅜ x 1½-inch entrance, carrying with it any slight moisture.

On the arrival of low temperature, the cold is slow to work in or the heat to work out through the thick walls, and, while the bees may cluster, little activity is necessary to maintain the necessary temperature which means a low food consumption with a correspondingly small amount of water vapor, all of which is expelled through the small flight open-

ing. The inside walls of the hive are never cold enough to freeze.

Consuming little food through a small degree of activity, the bees are not crowded with faeces. Each succeeding attack of cold weather finds the colony with practically no shrinkage of numbers, no impairment of vitality, and few dead bees, all carried out. All the dead bees from any colony in the spring would not more than half fill an ordinary teacup and the colony emerges unimpaired.

We have noticed that the bees which ordinarily die through the winter with other systems, in our colonies, live right through until the middle of fruit bloom, when the old bees die off rapidly, leaving the colony well built up in stores and brood.

You state that bees rarely die from cold, but are killed by the accumulation of faeces. That is an odd way to put it. While the intestinal accumulation is sometimes the immediate cause of death, this accumulation itself was brought about by the heavy food consumption resulting from increased activity of the bees to keep warm in a poorly packed or damp hive. Had there been no cold, this would not have taken place, so the cold is the cause of death.

A man might light a fire and burn down a building, and while it would be true, in a sense, to say the fire destroyed the building, yet the man is the real cause of its destruction, since, had he not been there, the destruction would not have happened.

To sum it all up, we pin no faith on absorbents, which we have found unnecessary when proper insulation is given, and useless in preventing the death or weakening of a colony in winter when the packing is not sufficient to conserve colony heat under all conditions.

Starvation and cold — those two great major causes of colony loss in winter—are both easily overcome.

(Our correspondent's method of packing is undoubtedly that which has protected him from the troubles of sealed covers. But we have found this amount of protection, "a wall over, under and around the hives at least eight inches thick," to be impracticable in large apiaries, especially with our large hives. It is too expensive and bulky. We use double-wall hives, with shelter from winds. Not five men in a hundred use such expensive packing as he does.

As to the difference between western Illinois and that part of Ontario in which he lives, if there is any difference in the rigors of winter, it is in favor of Ontario, as it is sheltered from the great, cold winds by the lakes, Michigan and Georgian Bay. Our thermometer ranges from 20 degrees below zero to the 50 degrees he mentions, and we sometimes see three weeks when the thermometer does not go above 10 degrees in the warmest part of the day.

If we were to use eight inches or more of packing over, under and around our hives, we might have never seen the troubles which we described, since such packing places the bees in conditions entirely independent of the weather. But we cannot imagine packing five hundred to seven hundred colonies to such an extent when we know we may have to move entire apiaries for crop purposes.

As to the result of upper moisture absorbents, it was so clear that we have never since failed to use them, and we winter our bees on the summer stands with very little loss.—Editor.)

Meet Mrs. Jensen, Our Capable "Miss Fischer"

As "Miss Fischer," Mrs. Jensen is well known to beekeepers everywhere as the guiding spirit of the American Honey Institute. Few of them realize, however, that her work is fortified by the fact that she is herself a mother and has a home in which many of her Institute efforts receive their impulse.

Much of Mrs. Jensen's work with honey in the modification of infant diet has been worked out with the cooperation of her physician in the care of her own children. "Miss Fischer" feels certain in her work that the fact she has been a home-maker herself for five and one-half years qualifies her more thoroughly for her work with home makers in the interest of American Honey Institute. There are probably few beekeepers who realize the actual problems of the modern home maker. Not many people do unless they have had the experience that home makers have.

One of the quickest and best ways to increase the consumption of honey is through a special consumer educational program directed primarily to the home maker. This has been a point discussed time and again at the meetings of the Home Economic Association, and so we feel that in Mrs. Jensen we have a decided asset at the helm of affairs in American Honey Institute. As a home maker we are glad to take this opportunity to introduce her to those beekeepers whose support is now being so splendidly secured for the work of this great institution.

Are Cool Weather and Cool Nights Essential to Thick Honey?

By Bro. Alphonse Veith
Indiana

This question was asked in the September number of the American Bee Journal by a reader in Michigan. As far as the production of honey in this locality is concerned, I must answer this question in the negative.

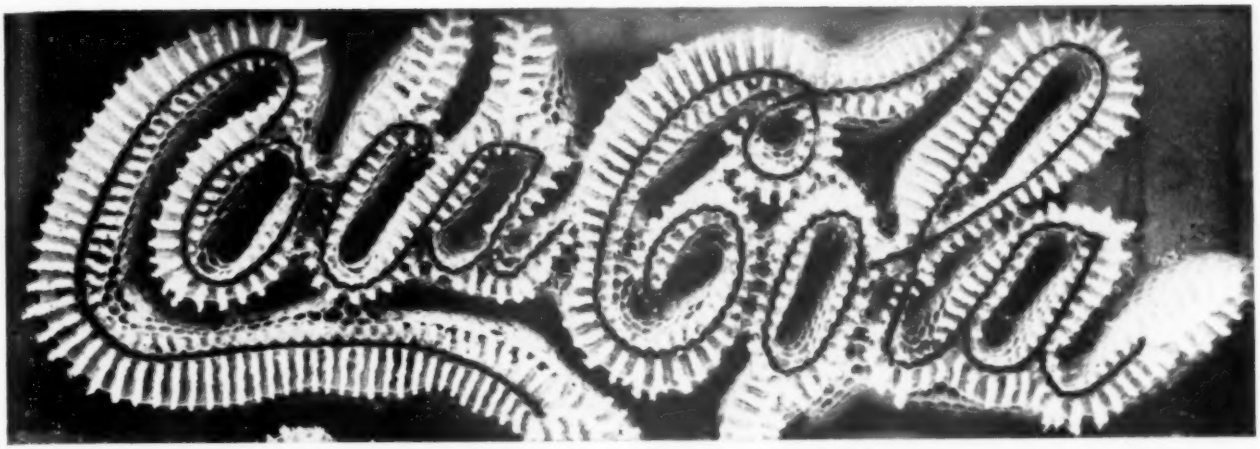
Thick honey is produced here only when days and nights are warm, with enough rain to keep the plants alive. This is especially the case with white clover, but with other honey plants also. During the present season, from August 20 until September 13, we had a striking proof of this. During this time the small variety of goldenrod was in bloom and the weather was hot, with plenty of rain. The honeyflow was exceptionally heavy and the honey produced is of fine quality and consistency.

From September 25 to October 13, white asters were in bloom, but the honeyflow was slow, due to cool winds from the northeast. The best honey plants yield here but little when the wind comes from the northeast, while they do their best when a moderate breeze from the southwest prevails, provided the weather is not too dry. Dry, hot weather always stops the honeyflow the same as cool weather does. This may be different in localities north of Indiana. (This is Spencer County.)

In some seasons honey plants are poor in the production of nectar although weather conditions seem to be all right, while in other seasons they are full of nectar apparently under the same conditions. This, I think, is a secret of nature over which we can only guess.

Getting the Bees to Spell It Out

By A. V. Small
Kansas



THE public in general feel that there is something mysterious and wonderful and untamed about bees, and this atmosphere of mystery is the line that attracts the public whenever a demonstration of bees or their products are exhibited. We all believe in fairies more or less, and if you are considering having the bees build some design, be sure and fix up some kind of a "fairy" story to explain why the bees should have built their comb in such an unusual shape.

The fact that my honey label features the letters A. V. S. enabled me to secure some very valuable advertising for our A. V. S. brand of honey. The design was so unusual and the little story about the educated bees had such an appeal to the newspaper men that the story and the picture found their way into the Sunday edition of the Wichita Eagle. News story advertising is not only the cheapest but also one of the very best types of advertising.

Now for the technique. When bees build comb they hang their combs from the roof of the hive very much like curtains hung from the ceiling of a room. Bees usually space their combs an inch and one-half to an inch and three-eighths apart, but if good, solid starters of heavy comb foundation are used they will adopt almost any spacing we give them and will build long or short cells accordingly, and they will accept these starters as the midrib of their combs, no matter in what shape we place the starters.

With these facts in mind, it is very easy to get the bees to build any design you choose. Just fit a sheet of glass in the top of an ordinary comb honey super, cut medium brood foundation in strips an inch wide, form them into any design you care to, and fasten them to the under side of the glass with any colorless, quick-drying varnish. It is just the edge of the foundation that touches the glass, so that the foundation will hang from the glass like curtains hung from a ceiling. When the bees build their combs, using the foundation for a midrib, the tops of the combs will be securely fastened to the underside of the glass by the bees, and these combs will be built in the design we used when we fastened the foundation strips to the glass. Use beeway comb honey slats in bottom of the super.

But don't forget the fairy story. Every design should have a story giving some mythical reason to account for the design. In the case of the Coca Cola design we had a bee yard located near one of these signs which had been blown down by the wind. The bees acquired the habit of forming around the letters to drink the rain water that collected in depressions, and when the honey-flow came they were so in the habit of arranging themselves in the form of the letters "Coca Cola" that they made their honey in this form. Of course the public does not believe such a story, but it is a good story and they like it and will repeat it to their friends.

Ever Try Trading Honey?

Ever try trading honey for things you need? If you are a good salesman you will be surprised at how much honey you can turn in this way and at the same time you will introduce honey into a lot of homes that would not use it otherwise.

In these days of "repression," every merchant or business man is anxious to turn his goods at a retail price if possible. This method of trading gives him a chance to do that and also gives the honey producer a chance to turn honey at a good retail price.

We have given it a trial the past year and here are a few things we have traded for honey: Bees and supplies, groceries and clothes, fuel, paint, gas and oil, car repairs, lodging while out on the road, sign work and advertising, furniture and insurance, barber work, laundry work, telephone bills, doctor bills, and apiary locations.

We think anything that will turn honey is worth trying, and we have disposed of much honey this way, found many new customers and helped the other fellow too.

Leroy Churchman, Kansas.

Packages Too Early

The American Bee Journal is an eagerly welcomed visitor to my desk each month. I especially enjoy your editorial comments, which so often add the note of sense which some articles lack.

However, what you had to say about "Earlier Packages" in the July number is not in agreement with my experience in this locality. This year I had forty three-pound packages arrive on May 1, and six more about May 18, and the later ones have surpassed the earlier very much in amount of honey gathered so far. The reason as I see it is, the earlier packages suffered heavier losses through inclement weather than their brood rearing could make up for. I shall order my packages to arrive about May 15 hereafter.

C. S. Langley, Wisconsin.

(Evidently conditions differ according to locations and seasons. The largest number of reports indicate that early received packages have proved best.—Editor.)

Fire

The Field Editor, after a long trip through the state of Florida, was much impressed with the possibilities of that state for honey production. He found, however, in many places that the industry is going backward because of the general practice of burning over the woods every few months. Many beekeepers reported that splendid locations had been ruined by fire and the beekeepers compelled to move their bees. In some cases the apiaries were burned along with the pasture.

Florida has a greater variety of natural honey sources than any state in America, unless possibly it be California. Gallberry, saw palmetto, cabbage palmetto, tupelo and mangrove all produce honey in large quantity under favorable conditions. Gallberry and palmetto locations are burned over so often that it is impossible to estimate the losses that result.

It was interesting to note the effect of these fires on the visiting tourists. Formerly the lumber industry was the most important source of income to the state. Now that the forests have been cut, the fires destroy the stand of young timber and remove the possibility of similar prosperity for the next generation from the same source. Tourists are the most important source of income now, and they are being frightened away by the fires. They are afraid to invest their money in Florida property because of the constant danger of fire and think of California as a winter playground instead.

The beekeepers' protest is unnoticed, but it is evident that the winter visitor will have something to say that will be noticed. If he transfers his affections to California because of the fire menace and the fact that blackened stumps and exposed sand are not attractive scenery, this will soon draw the attention of the careless and indifferent who are unmindful of the real interest of the community.

Winter Consumption

Do bees consume more honey in a mild winter or in a cold winter? An affirmative answer in both cases may be right, for the amount of honey consumed depends upon the locality. In the North, where bees are confined to the hive even in mild days, there is less consumption in the mild winter, because very cold weather causes the consumption of a large amount of honey. Mild days, in which the bees are still confined to the hive, require less food. Thus the bees in the North are apt to consume less food in a mild winter.

In the South, on the other hand, when the weather is mild enough to enable the bees to fly frequently, there is considerable breeding because the bees have a more frequent opportunity to fly. Thus in a mild winter, in the South, the bees breed more and therefore consume more.

How to Feed Bees in Spring

If you did not feed your bees enough in the fall, or if they have consumed more stores than usual, it is well to feed them before they begin to suffer from a shortage of food. Make a mixture of two parts of water to one of sugar, well dissolved, and if possible feed this while it is warm. Put in cans in the lids of which you have punched a few very small holes. When you invert the cans there will be free leakage at first, until the atmospheric pressure prevents the liquid from coming out. So it is well to invert the cans over a dish. After a minute or two the leakage will cease or diminish greatly. You may then place your cans over the cluster, right on top of the frames, and cover the cans and the combs with woolen rags. Pieces of old woolen rugs are just right for that. The heat must be retained in the cluster if we wish our bees to thrive.

You may also feed sugar candy. This is made by boiling sugar with water until the water is evaporated. To know when it is at the right point, dip your finger in cold water, then in the hot solution. If what adheres to the finger is brittle, the candy is made. Pour it into greased pans, so that it may come out readily. Cut it into slices before it gets too hard.

Hives in Which Bees Have Died

The hives in which the bees have died are of value. Clean them thoroughly by brushing out the dead bees. Bees that have died in the cells may be cleaned out by brushing them. It damages the comb to some extent, but that will soon be repaired when the season comes. Worker-combs are the wealth of the apiarist. He must never allow any such combs to be wasted.

Some people will tell you that combs do not cost the bees much honey, because they have seen swarms build combs very fast. They do not realize that the bees of a swarm usually have their wax-producing organs filled with wax from honey gathered several days previously.

Dangers of a Mild Winter

During a mild winter, bees are apt to breed early. They do as do our fruit trees and our tulips—they make growth out of season. The result is that a colony which had an ample supply of food for winter finds itself with an unseasonable cluster of bees and a shortage of food as the spring opens. So we must watch our colonies, especially the strong ones, when spring comes. Take advantage of a mild day and open the hives. See whether they have still plenty of sealed honey. If not, give them some food. Do not feed slowly and sparingly, because this will be likely to increase the propensity to breed. Feed them as you do for winter, a good canful in reach of the cluster. There will be an advantage to extra strong colonies; they will be able to gather honey from fruit bloom, which they can rarely do owing to lack of strength, in an ordinary spring.

Beet Sugar and the Philippines

The National Beet Growers' Association petitions Congress to give freedom to the Philippines. They give as reasons, first, that freedom was promised to the Philippines, but last and not least the fact that the Philippines are creating a great competition against producers of beet sugar. So this is not a question of generosity towards a weaker people, but a very decided selfish interest.

We beekeepers are interested also in higher priced sugar, for high priced sugar causes higher priced honey. So we are interested in dropping the Philippines. We might even be interested in dropping some of our states out of the Union for a similar reason, but we would have no excuse of philanthropy.

Tariff is what many people depend upon to make money. But tariff has two edges, for two can play at that game. We have placed a tariff on honey so as to keep it from coming from Cuba and South America. But Germany saw the point and in turn put a tariff on our honey. France is preparing to do the same, for beekeepers all over France are making petitions for a high duty to be put on foreign honey, and that will hit us very hard, for much of our honey goes to France.

How long will nations keep fighting each other commercially by tariff walls?

We Think So Too

In the February number of Editor York's "Bees and Honey," Robert B. McCain has this to say:

"If it is true that the harrowing experiences through which the human race is passing brings to us a saner conception of the value of life and character, in contrast to the material things, for which we have all been so desperately, and vainly, striving; then, those of us who have made even a casual acquaintance with the honeybee will have a running start on our less fortunate brethren in seeking happiness. Why not begin to get some of the joy to be found in our occupation, and pass it on to others, through means of our bee journals? We double our joys when we share them. That's what we used to do!"

Yes, that's what we used to do. The old bee journals are full of the joys of beekeeping, the pleasant experiences, the wonderful observations that come from studying the habits of bees, the absorbing facts of colony life. Nowadays we think mainly of how we can produce more honey at less cost and how we can sell it after it is obtained.

So, from the joy of beekeeping we have passed to what is after all a more sordid phase of our occupation. Let's pass on some of the joys of beekeeping as we go along. It seems to us, even in the midst of these times of pressure, that beekeeping is still one of the most delightful occupations in which to engage. We believe that in the next ten years beekeeping will attract back to its ranks those who are seeking a closer approach to things as they are, those who wish to escape from the artificialities of a disappointing civilization.

Make It a Shake Upward

Ever try this experiment? Fill a jar with beans. At the bottom put several big beans. Close the jar and shake it violently.

What's happened? When you stop shaking the bigger beans have all found their way to the top. You can turn the jar over, shake it again and the same thing will occur. No matter where you put them, no matter how hard you shake them, the big fellows will always reach the top and the little ones will always get pushed down.

So it is in life. To those who are ready for a bigger job a shake-up like the one now taking place—is **a shake upward.** In the past three years business has been having a hard shake-up. Many a man who has been at the top through chance or pull has been shaken down to where his ability fits. However, to those who have prepared themselves, these years have meant opportunity.

Those beekeepers with the right kind of a background of experience and preparation are forging ahead and talk optimistically about the present and look forward to the future with hope and confidence. Those who are reaching the top are those who have been fitting themselves by learning the best ways to do their work and by studying the methods of success.

An Agreeable Invasion

This is the title of a note in a circular put out by the Canadian Government Information Bureau, "Canada Week by Week." It gives a total of 44,620,736 persons crossing the border between the United States and Canada in the year 1930, according to a report issued by the Canadian Government Bureau of Statistics. An average of eighty-five persons and vehicles crossing from one country to the other every minute of the day and night throughout the year. This shows how intimate is the contact between the people of the two countries.

Total traffic across the international boundary by way of bridges, ferries and tunnels consisted of 8,045,519 automobiles and 254 horse-drawn vehicles. This would indicate that the horse-drawn vehicle as a medium of transportation in North America has practically passed into the discard. How many of the total number of people going into Canada from this country were beekeepers it is hard to say, but we know that beekeepers are doing this very thing.

We also know that the greatest beekeeping advance in the past ten years has been in the plains states and in the prairie provinces of the great Dominion. Many beekeepers have gone across the line for permanent locations and are still continuing to do so, and the influx of American agricultural people into the provinces of Canada is going on now at a large rate, still further cementing the ties which unite these two nations together.

Beekeepers—Going and Coming

It has been a long time since we have received letters with such opposite points of view as we are now receiving from beekeepers. Some of them report the direst conditions; honey is not selling, everything is going to the bow-wows, many beekeepers going out of business, selling their equipment at any price they can obtain. Changes—changes.

Yet in the same mail will come letters from other beekeepers like the one from which I qoute: "We have sold about fourteen tons of honey in a retail way and have done very well from it. About cleaned up. Prospects for a good year ahead."

This is a fair sample, and the number of these optimistic comments more than matches the number of pessimistic ones. You can draw your own conclusions. The industry is changing, but we believe decidedly for the better.

Official Help for Honey

Miss Isabelle Thursby, Florida extension economist in food conservation, is doing some very good work for the beekeeper. She has issued a leaflet including numerous honey recipes, for general distribution among Florida housewives, and is demonstrating their use at many meetings in that state. Florida honey producers are fortunate in that the Department of Agriculture is assisting them in finding a home market for their product.

It seems very appropriate that such workers should stress such products as are available at home instead of the things which come in from distant markets. Honey is a very important item in the agricultural production of the state of Florida, and the department is following the right lines in trying to increase the outlet for that commodity by educating the housewives of the state as to its qualities and uses.

Beekeepers of other states will do well to call attention of their own officials to the need of such help as Florida is giving to its honey producers.

How Many Bakeries Are There in the United States?

That's a good question to ask after reading the item in "Doings in the Northwest" this month about the Golden Rule Baking Company, of Seattle and Tacoma, using eighteen tons of honey in the Seattle branch and half as much in the Tacoma branch. If even a small number of the larger bakers could be influenced to do this, what a tremendous outlet it would be! Beekeepers do not seem to realize the help the indirect uses of honey offer. By indirect, of course, we mean the use of honey by other people in the enhancement of products in which they are interested. The baker does not use honey because he wants to use up part of our honey crop. He uses it because it makes baked products that are superior.

There have been so many reports of bakers doing this very thing that there can no longer be any question of the real value which honey offers to the baking industry. It is only a question of getting the information over to the bakers. Beekeepers are not doing that rapidly enough.

A nice, fat package, quietly clustered

That Special Orchard Package

By G. H. CALE
Illinois

THE orchard package as a way out for the fruit grower is receiving enough acceptance so that we should become interested in the requirements which will make it a satisfactory orchard unit.

A fruit grower is told that unless he learns beekeeping his investment in bees will fast disappear; that bees must be given care just as he gives care to his tools, machinery and livestock, or his colonies will become so weak during fruit bloom that they will be of little value.

I have seen this advice taken to heart on a large scale, but it is hard to change from a fruit grower to a beekeeper. Every beekeeper knows that it has taken him a long time to learn his trade. To expect an orchardist, busy with his acres, to take sufficient time to learn beekeeping so that in two or three years he is able to manage a unit of bees, sometimes larger than the average commercial apiary, is really expecting a great deal of him.

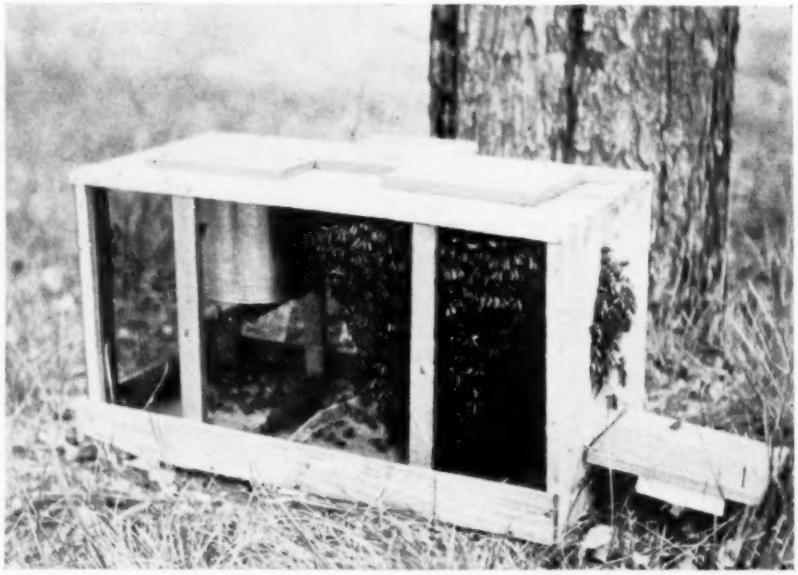
As a matter of fact, he does not do it. The bees actually are dissipated and lost. So the orchard package should be a welcome proposition. He has been told that bees purchased locally may not be good bees; in poor hives, run-down colonies, or wasted with disease. Experience of orchardists in buying bees has impressed this fact on the minds of his neighbors.

He knows that when he buys the orchard package he gets bees in prime shape to do the pollen carrying, and that he can then dispose of them as he sees fit. After two or three experiences with cheap bees, he falls in line, and since the cost is no greater than his losses, and sometimes considerably less, the orchard package looks mighty good to him.

Protection enough so the cluster will be able to move out quickly after a period of cold, seems essential in an orchard package

So it's up to the beekeeper to see that this package is the very best for the work which is expected of it. There are certain things, resulting from the experience obtained so far with bees in orchards, which are significant as far as the package is concerned.

First, the conditions which govern effective pollination are determined by Nature herself. Consider temperature. There must be a sufficient force of bees to fly when the temperature is right. April is the bloom month in the North, and that's early for packages and it's too early for settled weather



Some provision should be made so the bees will not cluster away from their food, in a cool spell

conditions. In western New York, according to studies at Cornell, out of a ten-year period there were only five years when the maximum temperature reached 70 degrees during bloom. Bees do not fly freely until 70 degrees. They fly short distances only between 60 and 70.

Studies in New Jersey determine our present rule of a colony or a package every 210 feet apart each way in the commercial orchard, or about a colony to the acre. Experiments showed that when bees were counted on the trees, with hives further apart than this distance, pollination was not complete. Orchardists are accepting this rule.

So the package must contain enough bees to fly in its limited area during every favorable interval. They must be so protected that the cluster which may have formed during a cold period may throw out bees quickly when the winds die and the sun smiles again. Unless there are plenty of bees in the orchard, there will be little pollination. Each package will scatter its bees over a territory too great for thorough work on the trees. The bloom must be worked hard to result in good pollination.

The orchardist cannot forget, too, that his bloom is in a receptive condition for pollination only a short length of time. Even though a package may be in the orchard for a month, with plenty of opportunity to fly, it is quite possible that flight was not sufficiently vigorous or sufficiently widespread at the time when the trees needed visits the most. Just the sight of bees flying on blossoms does not tell the whole story. These factors alone point strongly to the conclusion that the orchard package should contain vigorous young bees, a fairly large cluster, and ample protection.

Another factor which certainly should not be overlooked is that of food. It is generally thought that the bees, once reaching the orchard in bloom, will be able to obtain enough food to last during the bloom period. This is not always true unless flight is favored so nectar may be obtained and the numbers of packages are not too great to exhaust the source of nectar. Packages for safety should be provisioned against chance, with extra food or a means of providing it.

The details of a package sufficiently provisioned, reasonably strong in young bees, with arrangement for protection after location in the orchard, may be worked out in various ways and will depend upon the ingenuity and skill of the shipper, but these general points should be kept in mind. Once having established satisfaction on the part of the fruit grower with the special orchard package, there is no reason why the demand should not grow.

Requeening Package Shipments

By L. T. Floyd
Provincial Apiarist, Manitoba

THE past season has fixed an idea in my mind that I would like to pass on to those who are working on the problem of supersedure of queens in their package-built apiaries. This idea is not anything particularly new, but is certainly valuable.

In talking with a beekeeper in this province some years ago (this man is now one of our part-time inspectors), a man who was securing large averages from his colonies, he informed me that he had a standing order with a queen breeder in the South for two queens a week all summer, and in his apiary of fifty wintered-over colonies he found he needed that many to keep up with the number that showed signs of failure.

His plans were to have the queens arrive on a certain day in the week and examine the colonies next day. I made this comment to him: "If you do that, your colonies will all be requeened before fall." He replied: "That has nothing whatever to do with fall requeening."

Last spring I decided to experiment with 175 colonies, all made up from packages and kept in three yards at points widely separated from each other. I ordered five queens to come weekly and divided these three ways: I had them arrive preceding the first shipment of packages in mid-April and following each week until swarming commenced. On two or three lots I had letters back stating that there was not enough to requeen all that needed it that day. At the close of the season there were only two nucleus colonies made up from queens that were not needed. It was a great pleasure to handle the uniform crop from the colonies so requeened.

In harvesting the crop from apiaries made up from packages it is usually the thing to find two or three colonies five or six supers high and all filled and the next colony opened with only a super or two. On enquiry you learn that great difficulty was encountered in getting a new queen accepted and the delay caused the loss of the crop from that colony. If seven or eight of such colonies are found in an apiary of fifty, the average in pounds for that yard is seriously reduced.

The men working with these weekly shipments reported that they had no trouble in introducing, as the colonies in most cases still had the failing queens and these were removed and the new ones introduced before the morale of the colony was broken. We found that the first early shipments were lost in the mail because of chilling, and next spring intend to have them come by post in packages of bees until the middle of May.

The greatest benefit of all came from the regular examinations which the bees received. One man commented: "There is a lot of work in handling this experiment. I sometimes have to cover the entire fifty or more colonies in order to find a place to put those two queens."

The bees also receive other little attentions that are needed that would not be given if those queens were not to be disposed of. Altogether, the benefits received made the work very valuable. The cost of the queens was a small matter compared with those benefits.

Another Old Beekeeper Passes Away

Otto Bussanmus was born in Germany January 6, 1848, and died after five weeks' illness at his home in Bevington, Iowa, December 18, 1931, at the age of 83 years.

Although he was a cabinet maker, carpenter, and also a storekeeper, having started a progressive general merchandise store at first, he finally became interested in bees. He was an extensive comb honey producer; at the time of his death he owned eighty-five colonies, but there were years when he had many more.

During his forty years of beekeeping he was always active and kept his apiary in the best shape, requeened regularly, watched for foulbrood, also tried new ideas. He said he was always learning.

The American Bee Journal was his favorite magazine, of which he was a yearly subscriber since the 1890's, or almost as soon as it was published. All of these old copies were saved.

He was a member of the Iowa Beekeepers' Association a long time and attended many of the meetings.

Always good-natured, courteous and sociable, Mr. Bussanmus will certainly be missed by all who knew him.

Joseph Burk, Iowa.

Death of a Scientist in Beekeeping

We must record the death in January of Mr. Angelloz-Nicoud at his home in St. Didier-Sous-Riverie, near Lyon, France. Mr. Angelloz-Nicoud was an authority on bee diseases. He wrote a book entitled "Diseases of Bees and Apiary Micrography" in the French language. He was only 47 years old.

To put up cut sections in quantity is a real job. But read the way Mr. Hilbert describes it.

Cut sections wrapped in cellophane and cartoned in a window carton

The Hilbert Method Cut-Comb Honey

By James E. Hilbert
Michigan

WITH ten years' experience producing cut comb honey, we are now ready to pass on the wonderful advantages of this method. It doesn't make any difference how large or how small the beekeeper, this method will fit in anywhere that bees make honey. And the equipment needed to produce on a large scale is not costly.

To produce cut comb honey to the point where we have it developed today has taken a lot of time and expense, but we feel repaid many times over in the advantages of the method. It is the ideal way of producing comb honey, and we feel that within a few years beekeepers all over will be using it.

The first cut comb honey we produced was with crude equipment, wrapped in parchment paper, with a closed carton, and we had trouble, honey not being drained good, wrappers leaking, and the closed carton did not sell well, as the buyer wants to see the product.

We kept experimenting with the draining equipment until now there is very little liquid honey to settle to the bottom of the package and the honey is drained quickly. In fact, in the morning when the person cutting gets his equipment full of cakes, which takes about thirty minutes, the first that was cut is ready for wrapping, and two persons continuing to cut and wrap can put up one thousand pounds a day, ready for shipping. The honey is not touched with the fingers at any time while packing.

Moisture-proof cellophane wrappers are used, making a neat package with no danger of leaking, as the way we wrap the honey forms a sack for the cake to sit in.

Open-face cartons, of which we are the originators, are used, and when the cellophane-wrapped cake of honey is placed in these cartons you have a very attractive and sanitary pack. Our shipping case has dimensions for twenty-four cartons, which is all the shipping case you will need with cut comb honey.

Two grades of honey are packed. Any cake of fourteen ounces or more is fancy, unless it has poor color. In that case it is packed as No. 1 with cakes under fourteen ounces; or if not good enough for No. 1, it is put in the melting pan with the edges of honey, cut from the frames. About 90 per cent of the honey packs fancy grade. Think what this means in the sales of your product.

We find the Modified Dadant hive ideal for our comb honey method. They are also a very handy hive in the orchards for pollination of blossoms. However, you can use any size hive you wish for cut comb honey. Shallow extracting supers are the best size for cut comb, as they will cut four to the frame, weighing nearly one pound each, and in case something happens that they are not suitable for comb, you can extract them.

One of the big features of our method is the fact that you can mail cut comb honey thousands of miles, in its regular case of twenty-four cartons to the case, without danger. We have never received one serious complaint and have mailed it to California from here at Traverse City and it was received in fine shape. This is a great advantage to customers who wish your honey and can send and get it any time by mail.

In shipping thousands of cases by boat, stacked ten deep in the regular case, we have never had any heavy breakage, and I was witness to a warehouse truck dumping off seven cases with only three cakes of honey damaged. They were on the corners of the cases.

All producers know the swarming troubles they have with sections. Not so with cut comb any more than extracted, and it is common to average one hundred pounds of cut comb per colony besides the extracted or drainings, which will average about one-third of the amount of comb.

The cost of packing cut comb honey by our method is small compared to any other. The small beekeeper, that wishes to sell most of his honey at home, won't need the

cartons, unless he wishes to use them, and often the shipping case is returned.

For the larger producer the cartons are necessary for protection. The coming season we are going to use a case holding one dozen in combination with our two-dozen case, as many customers only buy one dozen at a time.

Some readers may think we are pushing our method too much, but we feel, knowing what we do, that too much cannot be said in its favor in these days of keen competition.

Department of Agriculture Report

The Fourteenth Annual Report of the Department of Agriculture, State of Illinois, for the period ending June 30, 1931, contains among the reports of the various divisions that of apiary inspection, by A. L. Kildow, chief inspector.

In addition to a general report of beekeeping activities in the state, with a list of the inspectors and their respective counties, the report gives the following information regarding the disease situation: "During the year ending June 30, 1931, we visited 4, 928 apiaries with 58,627 colonies; found 1,185 apiaries to have disease, and in these diseased apiaries there were 5,006 diseased colonies. Two thousand, nine hundred and eight colonies were destroyed; 830 colonies were treated by shaking and burning all diseased combs and honey; the remaining diseased colonies were left for future treatment."

Talk About Winter Defenses!

I have just been out to the apiary, on the twenty-eighth day of January — a day like spring, with the bees watering wherever they have a chance, flying round and round in a merry salute.

Five colonies not flying much. Observation shows them to be Caucasians. They are outside, but they are not nervous about it. Just enjoying the sunshine apparently. And such winter defenses as they have down in front of the entrance! Just holes for a bee to crawl through, strung across from side to side. Everything else shut up tight.

I notice robbing and its excitement in neighboring Italians. Many bees outside running round and round and here and there little groups of two and three rolling over and over. It seems as though this goes on constantly, and yet these Caucasians show nothing of the sort, with the exception of two bees in front of one of the five colonies. One Caucasian had a sting buried in an Italian.

G. H. Cale.

Report of Meeting of Honey Producers' League and American Honey Institute

League

At the annual meeting, the American Honey Institute voted to allow the League to elect a member as a representative on the Board of Directors of the Institute. The League unanimously elected Mr. Cary W. Hartman, venerable beekeeper of Oakland, California, as its member of the Board.

Mr. Hartman, a former officer of the League and now honorable life member of the League and secretary of the California State Beekeepers' Association, was present at the meeting and pledged the support of California and other Pacific Coast beekeepers and associations to the Institute and League program

The League presented a good program of topics selected by Mr. Reese, Ohio state inspector and director of the League from the First District, comprising the northern group of states as far west as the Mississippi River. These topics, concerning reorganization, legislation, marketing, production, and related subjects, will be published in the various bee journals and probably in the annual report to be prepared in the near future. The talks given by Mrs. Day, of the Kellogg Company, and Miss Snapper, of the Pabst Corporation, alone were worth the trip to the convention. They were filled with enthusiasm for honey and the work of the Institute.

The American Honey Producers' League will discontinue the publication of the American Honey Producer and publish in its place an annual report containing convention discussions and other facts pertaining to the League. This report will be available to members of the League. Membership dues have now been reduced to $1.00 a year. It is expected that the report will be ready on or before April 1.

In addition to receiving the report, League members may subscribe for the bee journals at reduced prices and may use the League warning poster, which has proven effective in cutting down petty thievery. The cost of these posters is $1.00 each for a period of one year.

State associations may affiliate with the League for $12.00 a year, and local associations, or regional associations which are not statewide, for $6.00 per year. These affiliated organizations are entitled to one representative at the annual meeting for each multiple of $6.00 paid in dues.

It is the hope of the League officials that the support of the associations together with the returns from the sale of posters will be enough to cover the ordinary expenses, including publication of the report, so that the dues of members may be turned over to the American Honey Institute.

Associations are urged to get behind the League by sending in their dues so individual members may enjoy the privileges of the League and their support may in this way go to the Institute which has been adopted by the League as one of its definite policies.

Officers of the League for 1932 are: President, James Gwin, Department of Markets, Madison, Wisconsin; secretary-treasurer, V G. Milum, Vivarium Building, Champaign, Illinois. Directors: First District, C. A. Reese, state apiary inspector, Columbus, Ohio; Third District, H. D. Rauchfuss, Jr., Worland, Wyoming; Fourth District, T. W. Burleson, Waxahachie, Texas; Fifth District, William A. Weir, 5 DeFries Street, Toronto, Canada. Mr. Morley Pettit, of Georgetown, Ontario, and Albany, Georgia, was elected vice-president and H. D. Short, of Fitzpatrick, Alabama, director of the Second District.

The point of the 1933 annual convention has not yet been determined, but Memphis, Tennessee; Montgomery, Alabama, and St. Louis, Missouri, are being considered, the date of the meeting probably being during the first week of February.

Greetings of the League were sent to the Southern Conference, a report of which meeting is given elsewhere in this number.

American Honey Institute

The annual meeting at the Deshler-Wallick Hotel, Columbus, Ohio, January 25. A brief report of the past year's work was given by Lavonne Taylor, assistant to Miss Fischer, Miss Fischer being unable to attend because of illness in her family.

The all-important subject for discussion was whether the Institute would be financially able to continue for another year. L. W. Parks, chairman of the Board of Directors, reported the following pledges for 1932 signed and received to date:

List of Pledges

G. B. Lewis Co., Watertown, Wis.	$1,000.00
Sioux Honey Ass'n, Sioux City, Ia.	500.00
Dadant & Sons, Hamilton, Ill.	500.00
A. I. Root Co., Medina, O.	500.00
August Lotz Co., Boyd, Wis.	125.00
American Can Co., New York City	100.00
Continental Can Co., New York City	100.00
Standard Churn Co., Wapakoneta ,O.	40.00
Leahy Mfg. Co., Higginsville, Mo.	5.00
Hart Glass Company, Dunkirk, Ind.	50.00
D. D. Stover, Mayhew, Miss.	100.00
T. W. Burleson, Waxahachie, Tex.	25.00
Hazel Atlas Glass Co., Wheeling, W. Va.	100.00
F. W. Muth Co., Cincinnati, O.	100.00
A. I. Root Company of Iowa, Council Bluffs, Iowa	25.00
	$3,270.00

(Turn to page 120)

Candy Makers of the Insect World

A Study in Applied Biology

By A. C. Burrill
Curator, State Resources Museum, Jefferson City, Missouri

IN 1745 the first pure beet sugar was refined by Graaf, a German. In 1795 the first factory application for it was designed. Napoleon ordered 30 factories to break the embargo of English warfare in 1806. Sugar from Japan was brought into the United States in 1879.

Today we pride ourselves on making fudge, chocolates and other wonderful condiments. Most of us know that sweets were used by the Indians in the form of maple sugar; by Arabians and Egyptians as honey and candied dates or figs, and that the Chinese made delectable candy sweetmeats, preserves and jellies before the days of Adam. However, no modern sugar was known in the Middle Ages, though native cane grew in New Guinea, Japan and later in China and India.

Prehistoric Sweets

At Harvard University's Bussey Institute, I came upon the remarkable fact that peddlers of sweets existed before the human race was born. At least we have definite records in the Baltic amber far earlier than the Ice Age (Lower Oligocene), that ants and aphids were probably doing business as early as the Cretaceous, to say nothing of when bees began storing sweets and making their bee candy. I thought it might interest you to know something about the ancient candy makers who are still with us and also that it might be of interest as indicating a stepping stone to the future progress of our race.

Danger of Too Much Sweets

Why should we be interested in the origin and use of sweets except for the fact that sugar, next to oils and fats, is the best source of energy and heat equal nearly to the starches? Yet we hear today that the excessive use of candies and sweets and even an excess diet of starch is making in America a race of diabetics, shortening life as fast as all the other agencies involved in prolonging life and health.

The yellow-bellied sapsucker (woodpecker) sips fermenting sap from shallow wells drilled in patterns on maple, spruce, birch and other kinds of trees in their spring sap flow until the mother bird is so tipsy she often breaks her neck running into telephone poles or window panes. Nevertheless, the nestlings cannot be brought up on dilute maple syrup or similar sweet saps without at least premature death induced by enlarged livers or unstable stimulated body growth. Yet maple sap is supposed to be about the richest tree sap, the highest production being about an ounce of sugar to a quart of sap.

Honey-pollen Diet Safe for Bee and Ant Larvae

How is it that honeybees can bring up their grublets in honeycomb on a diet of honey and pollen? Honey is chiefly the nectar of flowers, a sap secretion which the bees evaporate, just as the Indians did maple syrup, only the bees heat and fan the honey thicker with their wings and draughts created through the hive, instead of by the evaporation of the sun or of the white man's fire under kettles.

The bee's mouth parts have a channel up the tongue that aids the capillary attraction of nectar in the flower tube up the mouth parts into the throat. Then with the aid of muscular action it is transported into the crop, or proventriculus, which is a sort of storage fore-stomach, capable of great distension for a large load and which can expel its load again by regurgitation into the cells of the honeycomb. There the honey must be ripened, when it is ready to feed to other bees or to be capped with wax, where it will keep indefinitely.

From Candy Syrup to Candy

Thus far we have considered how the honey is produced, but candy making depends on something further than heating and fanning. When it becomes zero weather, bees form a dense cluster to keep themselves from freezing to death, and the honey nearest the outside may chill enough to candy, just as hot candy syrups, from the stove, candy when dropped into cold water. In other words, a change of heat produces a difference in the molecules of the honey. The same thing happens when maple sap is condensed and under heat thickens so that on cooling it crystallizes into maple sugar.

Beebread as a Sweetmeat

That is not all the bees do. Most of us know that the yellow pollen (and other colored pollens of flowers) is a highly energized, concentrated plant product with oils and protoplasm, connected with the transmission of the characteristics of each plant to the seeds formed in the ovaries that will produce their descendants.

Our bees have found another use for this homeopathic packet of highly energized, oily pollen protoplasm, and they store pollen grains in their marvelous pollen baskets and bring home a weight almost as heavy as the bee itself, in addition to a load of nectar. Hooking it with her leg spines into a cell of the comb, she stores it there with a mixture of nectar.

There it is—honeybee bread; high in proteins, oils, and some starch, perhaps, like a wheat kernel made into bread without the process of the modern millers that give us our white bread flour. It is a sort of jelly-roll hot dog sandwich, because it is sweet; perhaps a walnut loaf cake or a peanut butter beef sausage would be a nearer comparison.

This is the highest art of the honeybee. It beats the candied dates and figs of the Arabs, the rice flapjacks and maple syrup of the Indians, or the honey cakes of Chinese or Hindu camel caravans. It is a high-powered food that brings a baby bee from swaddling clothes to pupal stage in less than six days; and, strange to say, no matter what the colors of the beebread sweetmeats may be as they are worked up from the differently colored pollens of varicolored flowers, the rolypoly, fattening bee larva is usually a milky or creamy white, unless it is diseased.

It is evident that a diet somewhat like this befell the Jews in Bible times, for it says in Isaiah vii, verses 15 to 22, that curdled milk (or butter) and honey were exclusive articles of diet, indicative of foreign invasion, which turns rich agricultural districts into pasture lands or into uncultivated wastes. And "a land with milk and honey blest," as the old church hymns say, looked good to Jews after wandering around in the wilderness, feeding on manna, another sweet product of insects. The Scotch say "Where is the best honey there is also the best wool." You see, since a pastoral district affords a great profusion of flowers, it is superior for the production of honey to a district under tillage.

What Is Nectar and Honey?

Darwin regarded nectar as a waste product of chemical changes in sap. Nectar has various compositions, and for that reason even honey varies a good deal. Generally it is stated that honey consists of almost equal parts of dextroglucose or dextrose and lævoglucose or levulose sugars, about 36 per cent each; 18 per cent water, or roughly one-third each of two sugars and one-fifth to one-sixth water, besides flavoring amounts of mucilage, wax, essential oil, coloring

bodies, a very little mineral matter, and pollen. Pollen is the chief source of the nitrogenous food supply of the bee and varies greatly in composition. When everything has been stated you will find a most rich candy in the beebread fed young bees.

Origin of Nectar Gatherers Shrouded in Unrelated Facts

I want to pass on to wasps and other candy makers, sweet drink and other syrup peddlers that came long before the bee. I think I am correct in saying that bees have descended through supposed evolution from ant- or wasp-like ancestors — some say both bees and ants from wasps. English accounts of the wasps, **Myapetra scutellaris,** and the genus **Nectarina** (Encyc. Brit. 1911) say they collect honey. A honey-like fluid of a nearly pure solution of uncrystallizable sugar (having the formula C6 H14 O7) is used by Mexicans to prepare a drink that can be fermented into a highly intoxicating beverage.

This fluid is yielded by certain inactive workers of **Myrmecocystus mexicanus Wesmael,** the honey ants, or pouched ants of Mexico. They contain about two times the weight of their own body, or about one gramme. A bee must visit 7,500 florets, at an average of sixty florets to a head, to produce that much; and to produce two pounds, or a kilogramme of honey, about 7,500,000 florets will have to be visited—work for a whole colony of bees for many days. So the ants that we call the field workers, or foragers, have to work hard to store so much nectar. A Lasius ant in Germany stores in one summer a liter from an apple tree with apple aphis, probably 8,000,000 milkings.

The late Rev. H. C. McCook, of Philadelphia, has written the best accounts and drawn the best pictures of these ants. Even more than the bee, the ant accommodates these large loads of sweets through the devices of a very extensible intersegmental membrane between the chitin plates or segments of the abdomen. As the crop swells, this membrane expands until the plates are further apart than their own width, and much more extended than a bee can do. This telescopic device is of more than passing interest, for the ants have adopted the physiological habit of storing their food as liquids in these crops. They have been dubbed living pantries. They use this method instead of comb cells, because if they are in danger they can move both house and pantry to prevent robbing.

This crop, supplying various kinds of drinks surpassing the usual soda fountain, is the great bond of union between members of the ant colony that keeps them mutually friendly and helpful to each other, just as the honeycomb serves the bee colony.

Age of Honeydew

Practically all the Homoptera, those sucking insects such as aphids, scale insects, and leaf hoppers, yield an abundance of honeydew. Anyhow, long before there were ash trees to provide manna to the Israelites, plant lice sucked (I am guessing) either juices of conifers or of our common tree-fern left over from the Coal Age days, such as the braken or hose-fern. When ants came into existence, supposedly about the Cretaceous period, anywhere from five to 143 million years B. C., aphids gave much honeydew. Later even bees gathered it and sealed it in their comb cells.

Prehistoric Studies of Honeydew

In the collections of the Geological Institute of Konigsberg, Germany, dating from the Coal Age, it is interesting to see among the thousands of specimens of Baltic amber a block containing a number of workers of the ant **Iridomyrmex gaepperti** (possibly an ancestor of the modern Argentine ant, **Ihumilis**) together with a lot of their aphid wards. From Dr. W. M. Wheeler's studies, "The Ants of the Baltic Amber" (page 20), we know that many of them had learned to attend plant lice.

In the lake formations of Florissant, Colorado, and of Oeningen and Radoboj of the Sicilian amber, we have the next later geological period from the Oligocene, namely, the Miocene, which took place from one to twenty million years B. C.

Wheeler disagrees with Handlirsch, the great European authority on the age of insect families and their origins, for not allowing the ants to have existed at the same time as the primitive phytophagous Hymenoptera during the Jurassic or middle Mesozoic Epoch. Back of this no one has gone, so far as I know, so we may content ourselves with the study of candy makers not less than 4,000 feet deep in maximum deposits down to a depth no greater than 100,000 feet, and a time not less than one million and no more than 150,000 years ago.

Sucking insects like the plant lice are found on various trees and plants, so many of them that it makes quite a book of botany to list all the different plants and the lice that are common to them. Several kinds of ants depend largely on honeydew to feed their ant grubs. While the bees seal up honeydew comb cells, in addition to feeding it to brood, it is found of inferior quality and brings a low price on the market and is used mostly in baking. Since ants feed only in spring, fall and summer, there seems to be no such mortality among them, as they do not need a cleansing flight.

The American public, then, consuming more sugar than ever before, becoming a nation of diabetics, should remember that the human race has been acquainted probably with the use of honey since it took lessons from the first bears robbing bee trees. I wonder if dieticians will not find a way to balance our sweet diet to avoid the results of illness and bring about a faster developing, higher-powered human race than any heretofore known, just through a study of the food habits of ants and bees.

Fooling the Bees When Feeding Syrup

By D. E. Scott
Tennessee

Last year I had to do considerable feeding for winter and could not wait until sundown to do it, so after noon I would put out the feed.

I took off the hive lid, put on an empty super and placed two five-pound friction-top buckets of syrup with fifteen or twenty small holes punched in the lid, inverted right on the frames, covering them with a burlap sack to prevent outside bees from getting in. Then the hive was covered.

Soon the bees think heaven has broken loose and out they come to see about it. When they are in the midst of their big hubbub I close the entrance so no bees can get in or out. In about twenty or thirty minutes they find that they are out to stay, so they want to get back in and begin to worry themselves. When a large number of the bees have settled on the front of their hive, I open a small entrance and they are so glad to get back that they behave themselves.

This reminds me of a human affair that took place at the schoolhouse fifty-five years ago. At playtime the teacher left and was gone, so the boys went to the playground. Scarcely was the teacher out of sight when the girls notified us that the door and windows were shut and that they were not going to let any boy in. The boys at once stacked up their ball bats, pitched the ball to its owner, put up the marbles, and to the schoolhouse they marched. Such pushing and prying at the door and windows you never saw. Finally we broke in. There was a terrific mix-up, pushing, shoving, scratching and pulling hair. Finally we got quieted down, but forgot all about our ball and marble games.

So it is with the bees. When they do finally get in they forget that there is any outside at all for a while.

At the top of Blewett Pass, 4,071 feet, over which truckloads of bees are moved from the Yakima Valley into the Wenatchee Valley for the orchards.

Factors Influencing Bee Activity in the Orchard

By R. L. Webster
State Entomologist
Washington

Nowhere have bees for pollination assumed proportions equal to the Northwest. Professor Webster looks on this development for us, with eyes used to middle western beekeeping, since he comes to Washington from North Dakota. It is a great counterpart in a thriving agricultural development.

AT the 1927 meeting of the Washington State Horticultural Association, W. A. Luce pointed out the desirability of placing stands of honeybees in orchards in the Wenatchee Valley to assure crop pollination, particularly of Winesap and Delicious apples in this district, which prove to be wholly self-sterile. He noted that those "orchards nearest the foothills produced the heaviest crops of fruit and that those orchards were also visited most frequently by native bees that make their home in the untilled land of the rocky foothills."

At about this time Mr. A. R. Chase, Chelan County extension agent, became interested in the matter of orchard pollination and made arrangements with orchardists on the one hand and beekeepers on the other for large scale introduction of bees into the Wenatchee district during apple blossom time. This movement has gained impetus and has become a part of the yearly program with many progressive apple growers.

It is likely, however, that the importance of native insects in crop pollination has been underestimated. During the spring of 1928, James A. Marshall, a young Canadian, enrolled as a graduate student in entomology at the State College, made numerous collections of wild bees and other native insects in the experimental orchard under the direction of Mr. Spuler. Many of these wild bees are very small in size, yet highly efficient in carrying the pollen from one flower to another. These bees build their nests in the soil, for the most part, and it is doubtless true that those orchards back up against the hills are somewhat better supplied with these native insects than others entirely surrounded by orchard land.

It should be pointed out here that in the Wenatchee district very few honeybees are kept, because of a lack of bee pasture, which is far more abundant in the Yakima district. It is true that the cover crop in the Wenatchee district would under ordinary conditions offer a large amount of alfalfa, but it has been found impossible to keep bees in an orchard district where so heavy a spray program is the rule, because of the fact that the bees are poisoned by the lead arsenate. According to what figures I have, there were 9800 colonies of bees in Yakima County in 1926, although beekeeping in the vicinity of orchards has been rather a precarious affair.

In some observations made April 23-26, 1928, by Mr. Marshall a total of 544 honeybees were counted during an examination of blossoms of Bosc and d'Anjou pears, Winesap, Delicious, Jonathan and Arkansas Black apples, and plums. A total of 1182 other insects were observed, including various species of wild bees, and many species of flies (Diptera). The following conclusions are

Two views in the Wenatchee Valley, with solid blocks of apple trees, wedged in narrow valleys, between mountains

taken from Marshall's report on this work:

"1. The native insects on apple blossoms are outnumbered by the honeybees when there are two or three hives in an orchard. On other orchard trees the native insects seem most numerous.

"2. Apple trees in full bloom, when far removed from an apiary, may be visited only occasionally by insects even on warm, bright days. In three hours only one hundred insects were noted among the countless blossoms of Winesap and Delicious trees in the Bushnell orchard. This suggests that the task of pollination if left to native insects alone is likely to be too great for them.

"3. Of all the insects counted at work on various orchard trees, nearly one-third were honeybees. Since there are few apiaries in Wenatchee, it is probable that the bulk of these were introduced."

Early in the game it was found that placing bees in the orchard was not automatically followed with the expected results so far as insuring pollination is concerned. Cool and cloudy weather during the blossom period keeps the bees at home, and there is nothing that the orchardist can do on the one hand nor the beekeeper on the other to coax the bees from their hives during these unfavorable weather conditions.

The temperatures at which bees become active is variously stated in the literature on the subject. For instance, bees have been reported by Park to fly out to obtain loads of water from melting snow, returning from a temperature of 33° F., while the temperature of the water was 32° F. Again, bees have been reported to collect pollen and gather nectar at temperatures as low as 42° F., but these are extreme cases and represent activity on the part of a relatively small number of bees. Again, influences within the colony doubtless have an important bearing on the flight of bees, particularly early in spring. At any rate, large numbers of the insects probably are not involved in these records of flight at low temperatures.

Because of some of these influences, it appears that the temperature governing the flight of bees from the colony may vary somewhat in different months. Lundie has pointed out as a result of observations made in the Bee Culture Laboratory near Washington, D. C., that the temperature at which the day's flight began ranged from 53 to 57° F. in April, but during May the range was from 60 to 64° F. On dull days a slightly higher temperature was necessary to bring about flight than on bright days, the difference amounting to about 3.6° F. According to A. R. Chase, there were excellent conditions during 1926 for insect activity and, in consequence, for orchard pollination. On the other hand, in 1927 the weather during this same period was "cold and stormy during the greater part of the time the trees were in blossom."

A. R. Chase, County Extension Agent, who, with Mr. Luce, was largely instumental in bringing bees into the Wenatchee Valley. He is the author of "Taking Out Bee Insurance," May, 1931.

W. A. Luce, formerly Assistant Horticulturist of the Washington Experiment Station, Wenatchee, now with the Earl Fruit Company.

The strength of the colony is a factor of prime importance. In the arrangements which have been made for bringing bees into the Wenatchee Valley, Mr. Chase has insisted on uniformity in colonies. It stands to reason that a colony of bees covering four frames in a hive is far less efficient than one which covers seven or eight frames. The more bees the greater the efficiency. Package bees shipped up from California in spring and built up previous to blossom time cannot be considered as equivalent to a strong colony which has been carried through the winter in this latitude.

The proportion of field bees, young bees, and brood is another point which certainly is an important factor. There is no advantage to the orchardist in renting a colony of bees when these devote most of their time to work within the hive. It is the young bees or nurse bees that must care for the brood. It is the field bees that the orchardist pays for as honeybees for pollination purposes. The proportion in the hive will depend entirely on the previous management of that particular colony before it was taken into the orchard. In conclusion, I want to point out that, while the fruit grower has no control over the number of wild bees in the orchard, he can control the number of honeybees by bringing into the orchard strong colonies during the blossom period. Their activity, once in the orchard, will depend on the prevailing temperatures, wind velocity, strength of the colony and the number of active field bees in the colony.

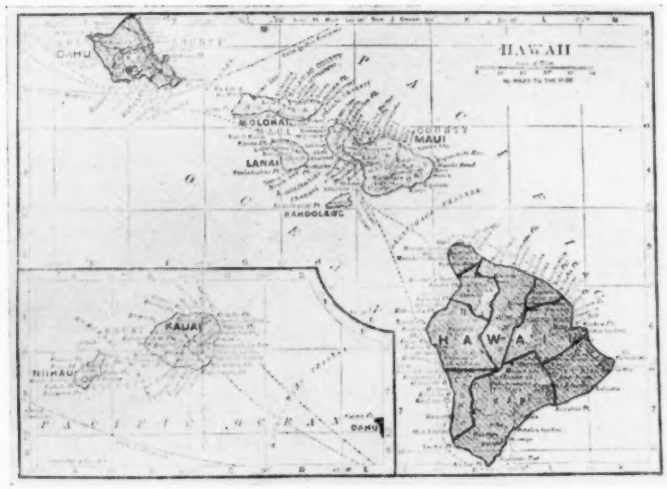
Increase Your Public Efforts Now

With short crops and falling market conditions, there is one activity that can always profitably engage the beekeepers' attention: It is the work of spreading the news of the food value of honey. For those who are prepared to speak intelligently and forcefully on the subject of bees and honey there is never a want of an audience. One beekeeper spoke to five clubs in a single month, and in every case he was asked to return and tell some more about the bees and honey. The story of the life history and the colony life of the honeybee, simply told, holds attention as few other subjects will hold it. The story of the food value of honey is equally interesting, and it is a story that the present sugar-conscious generation does not know.

R. B. McCain, California.

What About Hawaiian Honey?

By Natt Noyes Dodge
Washington



The Hawaiian Islands, a part of our country, and the source of a large volume of honey

From the islands of palms and smiling skies, a real and not a fanciful part of the United States, comes a yearly stream of honey which brings real problems to be considered. This is the first of two articles about Hawaiian honey.

THE Hawaiian Islands, from which come tales of palm trees, smiling skies, blue waters and sandy beaches, are also the source of more than one and one-half million pounds of honey which enter the continental United States each year. Although the call of her climate, her volcanos and her leia-girls has been heard, undoubtedly, by many American beekeepers, the fact that this island possession is of importance as a honey-producing land should also prove of interest. The additional knowledge that the giant's share of this crop of two million pounds annually enters the mainland through New York, Portland, Seattle, and California ports, without duty, to compete with the crops of local honey producers, raises disquieting thoughts. A study of beekeeping in Hawaii and of the honey produced there should be of interest and value to every American honey producer.

The nine inhabited islands which make up the Hawaiian group may be considered by some producers to be a beekeeping paradise. Those men actively engaged in beekeeping in the islands might be able to offer testimony and evidence to the contrary. Although the islands may boast of many conditions ideal for raising bees and producing honey, there are numerous factors which make the occupation as hazardous there as elsewhere. A fair understanding of the problem presented by the enormous quantity of Hawaiian honey coming to the mainland each year demands that the viewpoint of the island beekeepers be carefully considered. After all, the Hawaiian Islands constitute an integral part of the United States, and they must be considered as such rather than as a foreign land.

Bees were introduced in the Hawaiian Islands from California in 1857, but were kept in a very careless manner until the beginning of the era of commercial honey production, about 1900-5. In the meantime many swarms of bees escaped and wild bees became numerous in many districts. The business of beekeeping has increased rapidly during the last twenty-five years and, according to island authorities, has reached the limit of its practical possibilities. Apiaries are now located everywhere that they are commercially practicable, and many locations, especially on the leeward side of the Island of Oahu, have become overstocked. Other pastures are available, but these are so far from the shipping centers that the expense of transporting supplies and containers and of getting out the honey is too great to permit honey production to pay in the outlying districts.

Climatic conditions on the islands are so different from those in continental United States that beekeeping practices must be greatly altered. In the first place, the season is continuous, for the climate is tropical the year around, the islands being located within twenty degrees of the equator, or approximately the latitude of Central Mexico. There is an almost continuous honeyflow, as one or more species of vegetation is constantly in bloom. With nectar always coming into the hive, brood rearing is rarely interrupted and queens become unprolific in a year or eighteen months. Because of this condition, beekeepers find it difficult to build up colony strength at the proper time to take advantage of the heavy honeyflow from such sources as the Kiawe, from which much of the surplus is obtained. Tropical conditions encourage the rapid development of insect life, so that waxworms, ants and cockroaches flourish and are a constant menace to colonies not thoroughly protected. Brood diseases have been unknown in the islands until recently. Dr. James I. Hambleton, apiculturist of the United

A typical Hawaiian commercial apiary. Photo by courtesy of the United States Department of Agriculture, Office of Bee Culture

States Department of Agriculture at Washington, D. C., reports that it was not until June, 1927, that spores of American foulbrood were found in samples of brood sent from the Hawaiian Islands.

Nearly all of the large apiaries in the islands are owned by three or four beekeeping corporations, although there are a few privately-owned yards and numerous colonies scattered about. The company-owned apiaries are each managed by an experienced white beekeeper, although the bulk of the labor is performed by Japanese. Under the direction of the manager, the Japanese are excellent workers and become adept in carrying on the manipulations of the combs and in harvesting the crops. The privately owned yards are, in general, carelessly managed and poorly kept. Because of the short productive life of queens, due to the continuous breeding season, hive mothers are much in demand and queen-rearing has become an important sideline. The Japanese are very proficient in this work.

Transportation facilities have much to do with the practicability of beekeeping in the Hawaiian Islands. Although a certain amount of honey is consumed locally, the bulk of the crop is shipped to Germany and the United States mainland. Because of the enormous tonnage of Hawaiian products leaving the islands through the port of Honolulu, ocean freights to other lands are very low and Hawaiian honey may be laid down in mainland ports at approximately one-fourth cent per pound freight. The cost, however, of transporting honey from island apiaries to Honolulu is, in many cases, very high, so that locations which may have excellent pasture facilities are often undesirable because of the costs involved in obtaining containers and in shipping the honey to Honolulu or other island ports where ocean-going vessels call. Locations on the Island of Oahu are at a premium, while beekeepers in the Kona and Hamakua forests on the Island of Hawaii, where the finest quality of honey is produced, are unable to market their crops profitably because of the inaccessibility.

There are two principal sources of honey in the Hawaiian Islands. The kiawe, or algaroba, a shrub very similar to the mesquite of the southwestern United States (which reaches tree size on the islands), is the source of the great majority of Hawaiian floral honey. This shrub is widespread over the islands and comes into bloom late in March or early April. Nectar yield continues until late in August. The flow from algaroba is augmented by nectar from the blossoms of ohia lehua, koa, lantana, guave, oi, ilima, eucalyptus, wiliwili, mamani, catalpa, logwood,

(Turn to page 113)

From the Little Blue Kitchen

The Trinity

Shamrocks
Grow green leaves three
Upon a single stem;
Saint Patrick taught the Trinity
Through them!

Lida Keck-Wiggins.

* * *

George Washington

In view of the splendid physique and almost perfect health of the Father of his Country, the following note from a modern-day biographer will interest readers of "The Blue Kitchen":

"Washington was tall, erect, well proportioned, circumspect in dress, courtly in manner. He was an expert horseman. . . . He was extremely punctual. The cook was never kept waiting more than five minutes even if dinner guests had not arrived. Fish, nuts and HONEY were his favorite foods, while salt codfish was his favorite Sunday dinner."

Honey Lady was asked to a luncheon the other day in another city. Everything on the menu was "oh so good," but the dessert—oh my, oh my—it was par excellence! So, after luncheon, Honey Lady took the hostess aside and asked the name of the delectable finale of the feast. "Why, it's called St. Clemens Tapioca Cream," she said, very much pleased.

"Where did you find it?" Honey Lady asked.

"Heard it over the radio one day."

"Will you write it off for me?" said Honey Lady, with the American Bee Journal readers definitely in mind.

So the hostess gave it to the guest, and the guest took it home and tried it out in Blue Kitchen. The original recipe called for sugar in the dessert and also in the sauce, but Honey Lady, running true to Blue Kitchen form, used honey instead, and if you don't believe this dessert is in the manna-from-heaven class absolutely, try it for yourself.

Here 'tis:

2 cups milk (scald in double boiler)
4 tablespoonfuls minute tapioca
¼ teaspoonful salt
3 tablespoonfuls sugar (or two tablespoonfuls strained honey)
¼ teaspoonful grated orange rind
¼ teaspoonful lemon rind.
(Chill)

Sauce—The juice and pulp of one orange and one lemon, well mixed; half cup honey. Cook three minutes, chill, and pour over above mixture just before serving.

In these early spring days, when the ordinary "tummy" is just hankerin' for a house cleaning, it's a wise thing to do that cleaning with as much citrus fruit and as much honey as possible.

Honey Lady is "taking her own advice" in this respect, and hence is sharing in this March issue some of her treasured recipes containing the two elements mentioned.

For instance, there's "Orange-Honey Crispy," as its discoverer christened it. This is really a good one:

Pare two oranges. Separate the sections and remove membranes. Allow six to eight sections for each serving. Dip each section in warm honey and turn over in rice or corn flakes, puffed wheat or rice, or any ready-to-serve cereal (warmed until crisp).

This ought to help anybody start the day well and with a smile.

A member of Honey Lady's household caught or got caught **by** a pesky dry cough. Honey Lady slipped quietly into the little Blue Kitchen and soon came back with a glass of something which stopped that old hacking forthwith. What she brought in was just a half tumbler of honey (warmed up a trifle) mixed with the juice of an orange. Result: Mr. Cough, like all devils, turned on his cloven foot and made for the door. Nor has he ever returned!

Here's a nice orange and honey dainty, suitable for either an appetizer before a dinner or a dessert

(Turn to page 115)

Colonies Will Grow Rapidly on a Mixture of Milk, Sugar, and Water

By Rambler II
Washington

IN 1914 and 1915, with the help of another beekeeper, I tried many experiments with bees. One was the feeding of a number of unusual things.

We fed different strengths of glucose, and mixtures of glucose and sugar. We tried molasses. Then we used common sugar and different acids. Later we fed great quantities of sweetened fruit juices, with amusing results. Imagine currant jelly in beautiful white-sealed sections! Then we fed watermelon juice—not so bad that, not half bad in fact.

One time a mixture of soup was added to syrup in different amounts. We used chicken broth and mutton broth. Both seemed to stimulate brood rearing. In one time of pollen dearth I fed quantities of pea soup with vegetable juices added to the syrup. The results were satisfactory, though much sediment was always left in the bottoms of the feeders.

For pollen substitutes in spring I have fed grated dried cheese, powdered milk, casein powder, both plain and in all manner of mixtures with ground cereals, including beans and peas. The powdered milk was bad for the bees because it gummed them all up somehow. But when it was diluted with a great quantity of ground wheat, oats and peas, it was ideal and the bees seemed fond of it. We kept a box of the mixture in a sheltered sunny place, not far from water, and the bees worked in it just as well even after willows were in bloom.

We found the whole grains, finely powdered, were best. Beans were not so good, probably because they do not make a light flour. The green peas were preferred to those without so much color. I believe the powdered milk helped the bees to pack their pollen baskets. They carried immense pellets and used and handled the material in every way just as they do real pollen, sealing some of it under honey and caps.

The most interesting experiment was the use of fresh milk. We could never succeed in getting the bees to take it pure. The best way to feed it was to add fresh skimmed milk to warm heavy sugar syrup. A mixture of equal parts of sugar, water and milk proved best. We could see no advantage to whole milk, though we did not skim very closely. The bees were always eager for the feed and both used and stored it readily.

All colonies fed this way advanced far ahead of the others in activity and in the amount of brood. Also, the brood had a cleaner, brighter appearance. It was also noticeable that the colonies were greatly stimulated in wax making—so much so that we used the colonies to draw out new combs from foundation both early in the spring before the snow was all gone and afterward in the early part of winter when all other bees were broodless and inactive. A queen and a pint of bees in several cases built up to sufficient strength for wintering. I have repeated this again with perfect results, starting as late as September.

Think as you wish. The idea seems foolish, but we have heard of it before. In September, 1930, J. W. Winson reported the experiments of James Frazer, of the Dominion Experiment Station, Agassiz, British Columbia, indicating that milk-fed bees do well on the "bottle."

On the first of October, 1930, I took all the combs away from a strong colony except one dark empty comb. I then fed milk syrup every day, as much as they would take away, after shaking into a new hive with nine new frames of foundation and the one dark drawn comb. Although the weather continued cool, with the thermometer about 60 degrees most of the time, and seldom higher, the bees behaved very well, with little excitement after the first few days, and soon began to secrete wax like a June swarm. In about three weeks they had the hive chuck-a-block and had sealed some of the feed with the whitest cappings I have ever seen. The brood was soon sealed and in due time hatched into noticeably fuzzy bees.

What the results might have been if winter had closed at once, I do not know, but on two occasions when I have tried this I have been favored by a week or so of warm, open weather. I have never seemed to lose colonies of bees fed with milk, excepting a single-frame nucleus that rushed and roared all winter until they perished, though they could have flown almost any day.

After all the brood emerged, about five or six frames full, I extracted the two outer frames of food so I could examine it just as the bees had stored it. The children liked it for a change on bread. Although cloudy and smoky in color, it was clearer than when poured into the feeders. It was as thick as some New England honey that I have sampled, probably just under twelve pounds to the standard gallon.

I then put the empty combs back and fed clear, heavy sugar syrup to which a very little light honey had been added before boiling. The bees are alive and strong February 12 and they had lost remarkably few workers during the past winter. I have always seen that nuclei, built up late in the season by means of milk feed, never have seemed to lose the usual amount of workers. This may be explained by the fact that the greater portion are all young.

I would like to try this in a big way with say one hundred colonies and nuclei, and record and tabulate all of the results and observations. In this amateur research there are too many unknown and uncontrolled factors that are likely to upset the correctness of conclusions.

But some things are certain enough. The glucose and molasses that I tried were not good bee feed at all and very harmful. Apple juice, boiled cider and prune juice were fatal. I have had bees winter and live on currant jelly, strawberry syrup, raspberry and loganberry syrup. Apple jelly was not successful, since it caused intestinal trouble.

Meat broths with syrup will stimulate brood to some extent. The fat is not useful. Pea soup with vegetable water is better, though all of the pea substance is not used. But it does the work. Cheese and powdered milk are excellent when mixed with meal.

The old idea of Doolittle about boiling a little light honey in the feed to prevent granulation is the best way to accomplish that result provided the disease situation permits.

Milk, sugar and water in equal amounts is a wonderful feed at most any time of year to push brood rearing to the extreme capacity of the available force of bees. I have never known it to do the slightest harm and it will start wax secretion even in late fall faster than any other manipulation that I know. In fact, I have fed this way to prepare colonies for comb honey production with most excellent and profitable results. One must be careful not to get the material into the sections in place of honey.

For capping stacks of unfinished sections, nothing can beat a mixture of honey, syrup and milk as fed.

What About Hawaiian Honey?

(Continued from page 111)

various species of orange and lemon, several of the clovers and lupins, and other forest and fruit trees, forage plants and weeds, some of which are native and others introduced from foreign lands. In 1907 the Hawaiian Beekeepers' Association brought in several of the California sages, but these have not become sufficiently established to influence the honey crops. The heaviest yields come from the Islands of Kauai, Molokai and Maui, the latter offering the greatest opportunity for beekeeping expansion at the present time.

Between half and two-thirds of the honey shipped from the Hawaiian Islands is honeydew.

Hawaiian honeydew is gathered by the bees from the exudations of the sugar cane leaf-hopper. As the cultivation of sugar cane has increased in the islands, the production of this grade of "honey" has grown in proportion. The "honey" is dark brown in color, of a peculiar molasses-like flavor, and much of it has an unpleasant odor. It ferments readily and often develops this condition if stored for any length of time. An analysis of honeydew given in the Hawaii Trade Bulletin, "A General Survey of Hawaiian Honey," is as follows: Water, 16.24 per cent; invert sugar, 61.76 per cent; and ash, 15.3 per cent. The high ash content, together with the fact that honeydew is dextro-rotary in the polariscope, places this product under the ban of the national food law. It is illegal to sell honeydew, consequently this product may not lawfully be used as table honey or be blended with floral honeys to be packed and sold as honey. The use of Hawaiian honeydew in violation of the national food law constitutes a considerable problem for continental United States honey producers located near seaport markets where Hawaiian honey and honeydew is received. Because of the fact that algaroba honey is true floral honey, and that it may be used satisfactorily in a blend with mainland honeys, serves only to complicate the situation.

Acknowledgment for information and assistance is given to the following:
"The Hive Bee," by E. C. Smith, manager, The Garden Island Honey Company.
Mr. John A. Hamilton, manager, the Chamber of Commerce of Honolulu.
"General Survey of Hawaiian Honey," by Max G. Linder.

Why Give Blight First Page Position?

By L. E. Orr
California

It was with much curiosity that I read the old subject of bees in relation to pear blight in your February number. This subject caused a lot of costly experiment and ill feeling among fruit growers and beekeepers, and is so old that it causes beekeepers to wonder why the men of our universities still study the problem.

The question of bees scattering pear blight was fought out here in Kings County, California, thirty years ago and the bees got the best of it. If my records are correct, our state university had a part in this experiment. Net protectors were placed so bees could not work on the bloom. Ordinances were drafted to forbid beekeepers moving bees close to orchards.

As far as the results showed, pears blighted and orchards were dug up just the same. There are trees still producing fruit, but they are in protected places away from direct winds and among willows. Most of the old trees are not receiving care and have very little commercial value. The Bartlett pear was the hardest hit by the blight.

At my place near the bee yard the tree that was left to itself produced fruit and did not blight as much, but cutting back and forcing new growth produced new blight.

Trees of another variety set out in the early eighties are still in good shape, are big producers and blight very little. They bloom very early and are always covered with bees.

We think all articles on this subject are worth reading, but I do not think we should give them a front page display.

Bees Can Have Too Much Winter Stores

By R. B. Manley
England

It has been stated that keeping bees cold prevents food consumption. When weather is so cold that bees cannot fly out it does not mean that they remain in the hive inactive.

We know that the cluster temperature must be kept up, and that can only be done by food consumption. Yet I must admit that at least in England a severe winter is almost always favorable to bees. Why is this? I have myself given heavily packed four-colony winter cases four years' trial and I have failed to find any advantage from their use beyond a small saving of stores and absence of mould.

I have tried wintering stocks of bees in Modified Dadant hives with eighty pounds or more of honey, and in the spring, especially in unpacked hives, there have been several combs solid with honey granulated hard as a board. This is largely wasted unless removed and melted out, for the bees seem unable to use it properly and the granules are dropped on the floor and thrown from the entrance.

A good colony of bees will winter safely and well on forty-five or fifty pounds of honey from the end of one season to the next. I see no possible use in leaving twenty or thirty pounds of unnecessary food to choke the brood in late spring, particularly when that food is likely to become granulated and largely wasted.

In England, honey is worth about a shilling a pound, in bulk, wholesale, and it does not appear to me to be good business to hold unnecessary capital on the hives to the amount of twenty to thirty shillings per colony, equal to seven or eight dollars of American money.

Why *NOT* Make Jelly With Honey?

By P. R. Crouch
Colorado

Since honey will not ferment with starch as sugar does—and that is the chief objection to "jelly and bread"—why **not** make jelly with honey?

In my trial I boiled the honey—the best grade I could get—for five minutes at a gallop. Meantime I boiled my juice—grape and apple—ten minutes.

I used two cups of honey to four of juice, for honey is much sweeter than sugar. And I made every batch in small quantity, as success is surer in that way.

Next I combined the honey and juice in a nickel vessel—enamel will do—and boiled the whole briskly ten minutes. Promptly, but not without trepidation in my first experiment, I poured the jelly into glasses.

Would it jell—or would it simply remain in the dreaded syrup stage?

Judge of my triumph when, on turning out a cooled glass, I beheld my jelly—firm, tender, sparkling!

Cooked in Honey

"Honey-Bee Whole Wheat Flakes," a cereal manufactured by the Dwarfies Corporation at Council Bluffs, Iowa, has a red seal on the package which reads:

"Cooked in Honey and Toasted."

This is the most conspicuous recognition of honey on the part of a cereal manufacturer that has so far come to our attention. Should this cereal come into general use, the amount of honey used would be very large.

The red seal with its honey suggestion carries an unusual appeal to the housewife looking for products with flavor. Success to the Dwarfies Corporation.

By N. N. Dodge

Honey Is Becoming Better Known

That honey is gradually becoming better known to the general public is attested by the fact that manufacturers of various food products are becoming more interested in using honey in place of other sweets. Mr. Henderson, of Ye Olde Copper Kettle in Seattle, has been experimenting with honey in place of molasses and syrups in the commercial manufacture of popcorn balls and popcorn and peanut candy. He reports that honey is superior to either syrups or molasses and that the stronger flavored honeys are to be preferred to the lighter, milder grades. His only objection to the use of honey is on account of its tendency to become sticky after the popcorn balls are made. This objection may be overcome by wrapping the popcorn balls with waxed paper to keep out the air. Another concern in Seattle to experiment with honey is the Wonder Foods Company, which plans to put a honey-peanut butter spread on the market in the near future.

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Yakima Elects Officers

On January 30 the Yakima County Beekeepers' Association held its annual meeting in Yakima, Washington. The following officers were elected: W. A. Dunlap, of Toppenish, re-elected president; Wells D. Rose, of Sunnyside, vice-president; Theodore Sires, of Yakima, secretary-treasurer, and J. B. Espy, of White Swan, executive board member to succeed Mr. C. W. Higgins, whose time had expired. Mr. Higgins has held office in this association almost continuously for many years and has also been inspector of Yakima County for seven years, but has resigned this position on account of the pressure of private business and because of his duties as president of the Washington State Beekeepers' Association.

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New Mountain States Officers

At the meeting of members of the Mountain States Honey Producers' Association at Boise, Idaho, early in January, the following officers were chosen to pilot the big cooperative through the year 1932: O. A. Sipple, president; Arthur Anderson, first vice-president; K. M. Hutteball, second vice-president; A. W. B. Kjosness, third vice-president; Mrs. C. Forrest, secretary. On the board of directors Arthur Anderson represents Utah; O. A. Sipple, Montana; K. M. Hutteball, Idaho; Ralph Smith, North Dakota and adjoining states, and Charles Brittain Oregon and Washington. Mr. A. W. B. Kjosness was retained as general manager.

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Pollen Filled Combs a Problem

Miss Elizabeth Dickerson, of Woodinville, Washington, reports an unusual amount of pollen stored in combs during the past season. Western Washington and western Oregon beekeepers are frequently troubled with pollen-filled combs which take up valuable brood rearing and storage space in the hive. In some seasons this problem is much more annoying than others.

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Low Temperatures Indicate Honeflow

Beekeepers in this section are much interested in the prospects for a heavy flow of fireweed honey during the coming summer. Data kept by Mr. Fred Mandery, of Tenino, Washington, indicates a close correslation between winter temperatures and fireweed honeyflow the following year. Low temperatures point to heavy flows, according to Mr. Mandery's records. Heavy snows, with temperatures considerably below freezing, prevailed in the fireweed regions during the latter part of January and early in February, giving beekeepers high hopes of heavy flows from fireweed next summer. Pussywillows were in bud prior to the cold weather, with indications of bursting into bloom with the coming of sunshine and higher temperatures.

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Hawaiian Honey Makes Low Prices

More Hawaiian honey is reported entering all Pacific Coast ports from Seattle to Los Angeles. This honey is being laid down at from 2¾ cents to 3¾ cents per pound, depending upon grade. Mr. C. E. Hamann, Seattle dealer in honey and beekeepers' supplies, reports one beekeeper buying Hawaiian honey, blending it with his own product and supplying his regular customers. Importation of Hawaiian honey is stated by Northwest bottlers as the chief reason for the maintenance of low prices in this section in the face of a below normal supply of honey for this season of the year.

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One Bakery Uses Eighteen Tons of High Grade Honey

The Golden Rule Baking Company, with commercial bakeries in Seattle and Tacoma, Washington, announces that in its Seattle bakery alone 308 cases of two five-gallon tins of honey were used during 1931. This is a total of 36,960 pounds of high grade table honey consumed by Seattle citizens through the channel of bread and other bakery products during the year. The Tacoma bakery of this company uses approximately half as much honey as the Seattle plant.

Merits of Carniolan and Caucasian Bees

By Harmon Stevens

I am neither a queen breeder nor a seller of bees, and have no axe to grind. I have kept Italian bees since 1866 and have bought queens from many breeders that claimed how much better their bees were than the other fellow's. I found most of them to be the same. Some of them were good honey gatherers, some were poor—just as in all races of bees.

For the past five years I have been trying Carniolan bees, and find that I like them better than the Italians because they are better natured, they are better workers, they breed up better in spring, they breed later in the fall, they winter better, they seal the combs whiter, they brush off the combs more easily, and are less inclined to swarm.

One point in favor of the Italians is that the Carniolan queens are harder to find. There is only one race of bees that may be better than Carniolans, and that is the Caucasians. I have a few of them and find they have all the good qualities of the Carniolans and go them one better; they are more gentle. We have about three hundred colonies and about one-third are Carniolan hybrids, a few Caucasians, and the rest Italians.

Now for the bad features: I have not been able to get full-blooded Carniolan queens for the past two or three years. I have sent to different breeders and they all sent nice looking queens, but their young are ringed, streaked, spotted and speckled. My first Carniolan queen that I bought of a breeder of Carniolans was a dandy and a full-blood. We exhibited her at the Northeastern Wisconsin Fair and the Calumet County Fair and drew blue ribbons for three years on this same queen. We would like to hear from beekeepers who have given the Carniolan or Caucasian bees a trial.

Wisconsin.

From the Little Blue Kitchen

(Continued from page 111)

after a rarebit or other "heavy" meal:

Orange Cups with Honey

Cut oranges in halves. Scoop out the pulp and juice (removing membranes). Set cups in pan of chopped ice, or "just out on back porch this kind of weather). Cut Malaga grapes in two and remove seeds; the grapes may be seeded if desired. Have equal portions of the grapes and banana, dicing all together. Add the liquid in the proportion of juice of one lemon with juice of three oranges. Sweeten this with half cup of honey to this amount of juice. Add a "pinch of salt."

Fill the orange cups with the blent fruits, pour over the honey and juice mixture. Top with a fluff of whipped cream. Serve very cold. If using as a cocktail before a meal, omit the whipped cream.

And here's a very satisfying March breakfast menu. It was "tried out" in February, but is still capable of going strong with the family:

Cereal with Cream
(sweetened with honey instead of sugar)

Crisp Bacon Muffins

Coffee

or

Half grapefruit or half orange instead of the cereal

(Save the bacon, of course.)

In each one of these items Honey Lady (being a honey fan) made use of it for sweetening. Here's how: Sweetening for cereal or fruit; in the coffee, AND in the muffin dough, as follows:

Health Muffins

Sift together ½ pint white flour and ½ pint Graham flour, 2 teaspoonfuls of baking powder, ½ teaspoonful of salt; 1 tablespoonful (scant) of strained honey; 1 tablespoonful shortening melted (use butter), 1 beaten egg, 1 cup milk. Mix thoroughly and bake quickly.

And that breakfast meant another day started off on the right foot!

Lemon Jelly

For a mid-winter jelly (one made up to be used "fresh") here is one using the citrus juice and honey in a happy combination:

Soak one-fourth box of gelatin in cold water. Pour over it, stirring meanwhile, enough boiling water to actually dissolve it, and no more; add about one-half cup of honey, one-fourth cup of lemon juice, a bit of salt, and enough icy-cold water to make a pint in all. Strain and cool.

The Southern Conference

ONE of the big bee meetings of the year was the Southern States Conference held at St. Petersburg, Florida, February 2 and 3. Bee men were present from about twenty states and Canada. The program was followed substantially as printed, with President E. G. LeStourgeon in the chair. This was the sixth conference of this group, which was organized to deal especially with problems peculiar to the South, especially those of the queen breeder and package shipper. That the organization fills a very definite need is evidenced by the success of the Conference in a year like this, when business conditions are generally so unfavorable.

President LeStourgeon made an enthusiastic address, calling attention to the accomplishments of the organization to date and outlining things yet to be done. He stressed especially the need of support for the American Honey Institute at the present time, when sales are slow and prices low. In comparing the price of honey with that of other agricultural commodities, he found the beekeeper to occupy a relatively favorable position.

The beekeepers were welcomed by Dr. Wilmon Newell, state plant commissioner, and by Mayor Adams of St. Petersburg. They called attention to the many attractions of Florida and offered every cooperation to make the visitors' stay pleasant. Response was by W. E. Anderson.

The report of the committee appointed to attend the hearing on express rates for package bees, prepared by Kenneth Hawkins, indicated that the committee is hopeful of a favorable outcome. W. E. Harrell, of Alabama, and J. E. Wing, of California, were the other members of the committee.

Dr. Waldo Horton, president of the Florida Association, talked on cooperative marketing, outlined the problems which the beekeeper must meet and the difficulties of overcoming them.

Grover Lothrop, of South Dakota, told of the methods and problems of honey production in the sweet clover regions. He stated that the use of a common label by members of the association had led to the development of a demand for the white honey produced locally and helped to overcome the competition of outside honey in their market.

D. R. Hardy, of New York, spoke briefly concerning conditions in his locality. He was followed by W. E. Anderson, of Louisiana, who discussed the reasons for under-consumption of honey. Among other reasons, he mentioned the fact that most restaurants charge an additional price for honey with cakes, instead of syrup.

J. W. Barney, of Florida, discussed the problem of marketing a uniform product in a state like Florida, where there are so many different sources of such a wide variety of colors and flavors.

Paul O. Samson, a well known food specialist, told the bee men that when the public knew the truth about the qualities of honey there would be no lack of market demand. He laid the common occurrence of heart trouble and cancer to the use of cane sugar as an article of diet.

H. W. Coley, bee inspector from Connecticut, and A. L. Kildow, holding a similar office in Illinois, were called upon to tell about the progress of disease control in their home communities.

C. W. DeMooey told the visitors about beekeeping in the vicinity of the city where they were meeting, while Dr. Newell outlined conditions in the state at large.

W. A. Ruffin, of Alabama, suggested an organization of queen breeders and package shippers for each state, all to be affiliated in one organization within the Conference. A committee was appointed to work out such an organization.

An outstanding feature of the program was the demonstration of honey cookery by Miss Isabelle Thursby, extension food specialist of Florida, and Mrs. Ida Cornforth, the Kellogg representative. Space will not permit a detailed account of this part of the program here, but if all states would devote the same attention to developing uses for local products in the same way, it would do much to relieve the surplus of honey in our markets.

Bee inspection problems were discussed by R. E. Foster of Florida, T. Atchison of Alabama, W. E. Anderson of Louisiana, and M. S. Yoemans, state entomologist, and A. B. Hamlen, apiarist of Georgia.

At the evening session Dr. Hume gave an illustrated lecture on Florida honey plants whlch created great interest. This was followed by the new moving pictures of bees shown by J. I. Hambleton.

George W. Bohne, of Louisiana, made a plea for the darker grades of honey and told how they were building a trade for this product in his state. C. T. Tollafield, of the A. I. Root Company, gave an interesting account of beekeeping in the foreign countries which he has visited, and J. I. Hambleton discussed the spread of bee disease through honey and the problems of organization. Frank Pellett gave his im-

(Turn to page 120)

THE EDITOR'S ANSWERS

When stamp is enclosed, the editor will answer questions by mail. Since we have far more questions than we can print in the space available, several months sometimes elapse before answers appear.

CANDY FOOD FOR BEES

I have been looking in vain for you to publish directions for candy-making for bee feed this winter. Over in my homeland the bee journal used periodically to come out with the recipe for that form of winter supply, but several years away from the business have made me forget the proper proportions, also whether to add vinegar as in syrup making. Please also say at what temperature the candy boiling should cease?

I don't know your opinion on the value of candy as bee food, but S. Simmins wrote of it as the most valuable spring brood-raising stimulant he knew; also it is an insurance against winter starvation in light colonies, outdoor wintered, of course.

NORTH CAROLINA.

Answer—You will find the method of candy making on page 186 of the American Bee Journal for 1928. The method is as follows:

To make candy for bee feed, add water to sugar and boil slowly until the water is evaporated. Stir constantly so that it will not burn. To know when it is done, dip your finger into cold water and then into the syrup. When what adheres is brittle to the teeth, it is boiled enough. Pour into shallow pans, a little greased, and when cold break into pieces of suitable size. This candy is placed right over the combs above the cluster. It is the easiest way to feed without attracting robbers.

The above method is also printed in our "Honeybee."

HOW TO FIND THE QUEEN

1. I have nine colonies of bees; two are nuclei that I bought last spring, three-banded Italians; the seven are common or mixed bees. I would like to requeen these seven colonies this spring with Italian queens, but I can't find the queens. I tried several times last summer, but with no success. The queens are so near the same size and color as the other bees that I cannot find them. Is there any way that I could find them?

2. If my Italian bees should swarm, what would the young Italian queens mate with when both breeds are in the same yard?

NEBRASKA.

Answer—1. You must practice handling the bees a little oftener, so as to learn how to handle them without frightening them. The queen holds herself upon the brood combs, and that is where you can find her, if you go at it right. Open your hive with very little smoke and pull aside the outside combs, then pull out one comb of brood after another, looking on both sides of it. When two persons work at it, it is a little easier to find the queen, because one looks on each side.

If you still cannot find a queen, remove the hive from its stand and put an empty hive there, then shake the bees in front of it on a white cloth. You will find the queen readily that way.

2. Queens fly quite a distance when they go out to mate, and often mate with drones from other apiaries. There is no certainty of the kind of drone a queen will mate with. The only thing to do is to have plenty of choice drones in the vicinity.

MAKING A DIVISION

One of my neighbors wants me to furnish him a swarm of bees this spring. I do not want to allow them to swarm naturally; intend to try to prevent natural swarming by the removal of some of the brood.

Can I make him a swarm by taking five or six frames of brood with adhering bees, giving them the old queen or a new one at time swarm is made? If necessary to take brood from more than one colony, I suppose it would be best to shake bees in order to prevent fighting. They would be moved about two hundred yards from old location, and I suppose most of the old field bees would drift back to the parent colonies.

How does it work to remove brood to prevent swarming, setting same near parent colony and when most of the brood emerges shake the bees back to parent colony? I think it would be best to set the brood above the comb honey supers if the bees would not store honey there instead of storing it all in the supers. Do you think they would?

ALABAMA.

Answer—If you are not likely to be able to furnish a natural swarm to your neighbor, you had best sell him a division. Just take a few combs of brood, as much as possible ready to hatch, and place them in a new hive, with plenty of young bees, some honey and the queen, leaving the old colony on its stand.

If you keep those bees penned up in a shady spot where they will not get overheated, for twenty-four hours, and then transport them to your neighbor's yard, it will make a good colony in a short time. I forgot to mention that you should fill the space remaining empty in the hive body with comb foundation, or built combs if you have them. About six or seven combs with brood and honey will make a very good beginning for the swarm. Of course you may take brood from two or more hives if you prefer.

It is all right to remove brood from the main brood chamber of a colony and put it in a super, to prevent swarming; this is usually called the "Demaree method." If the brood is located above a super or two, there will be no danger of swarming. Of course you must watch it so that the bees do not fill it with honey after the brood hatches, which they would be sure to do in a good season.

BEES REPAIR COMB DAMAGE

1. By going through my brood combs the other day I found that ever so many are cracked from the top bar down. Will this hurt them any, or will the bees fix them up if I give them to them? I feared that it might have something to do when it comes to extracting them.

I keep these combs in the corn crib, upstairs. I was told if I keep them outside in the cold that the waxmoth would not bother, but find that there are several combs cut up by the moth anyway. I treated them with carbon bisulphide last fall as per instructions.

2 Can I use these infected combs? Will the bees clean out the webbing of the moth? It is not bad—just a few tunnels across the combs right next to the mid-rib.

3. Would it do any good to sulphur treat the infected combs and then use them again? Or is sulphur not strong enough to kill all the eggs and larvæ?

NEBRASKA.

Answer—1. Those brood combs will be repaired by the bees whether they put brood or honey in them. They never put anything in damaged combs, but make them as good as new, first. The reason they cracked was probably because you kept them in too cold a place through the winter. The moths you mention must have gotten into them before cold weather.

2. If there are not many webs, the bees will clean them; but if there are many webs, it may be better to clean those out yourself, because the bees are always more or less annoyed by the webs.

3. It is not necessary to sulphur those combs, as there can be no moth in them now. Sulphur is good to kill the larvæ or the moth millers, but would not kill the eggs. In order to do a good job with sulphur, the combs must be treated twice, about three weeks apart, in the summer. This will kill the young larvæ after they hatch from the eggs.

RIGHT PRICE FOR FULL COLONIES

1. I would appreciate it if you would tell me something about what price I should expect to get for my bees.

Last fall I advertised my forty-five colonies (now have only about thirty-five, due to severe winter) in the Journal, but have not been able to sell. My bees are mixed; in nearly new ten-frame standard hives, metal tops; combs made from full frames of wired foundation. I produce comb honey, so my bees had heavy winter stores and are strong colonies. I asked $7.50; then later, after the second ad, $6.50 per colony, and 70 cents per comb honey super. Do you think this was too much, or is the fall a poor time to sell bees?

I have to give up beekeeping on account of my health, and as I have put a good deal of labor and expense into them, I hate to let them go too cheaply.

2. When do you consider, during the coming spring, the best time to sell and move bees? Of course, they will have to be inspected again.

ILLINOIS.

Answer—1. The price you asked is very reasonable. We figure that bees on good combs, in the spring, are worth about $10 per colony. So your price of $7.50 is cheap enough. Of course, it is more difficult to sell bees in winter. The purchaser usually prefers not to run the risk of wintering them. This is evidently wise, since you lost ten colonies out of forty-five. But I think you lost a greater number than is usual.

2. The best time to sell and move bees is about the opening of fair weather, just before fruit bloom. At that time there is little risk to run and the hives are not heavy with honey, which renders them asier to transport. Yes, they should be inspected just before moving them.

EARLY QUEENS FOR QUEENLESS COLONIES

I have two stands of bees. I find that they are both queenless. Could I get queens from the South this soon in the season and put them in the hive? They have plenty of bees and honey. I think they have been queenless all winter.

INDIANA.

Answer—You can buy queens from the South this early, but I doubt the advisability to order them sent before the end of this month. If you get them early in April, I believe it will be better than to try to get them too early, when they might die on the way.

COMB OR FOUNDATION FOR PACKAGES

1. When is the best time to receive package bees from the South?

2. Do you have to give them combs or comb foundation? Which is best?

MICHIGAN.

Answer—1. The best time to receive bees in packages from the South is just before fruit bloom or during fruit bloom.

2. If you have worker-combs already built, they are best; but if there is honey in the fields or if you feed the bees, they may be hived on comb foundation. Combs already built are best.

REQUEENING FOR EARLY DIVISIONS. CANDIED HONEY

I have five colonies of bees and am wintering them outdoors. Judging from past experience, I expect two or three of them to come through so strong as to be ready to swarm by June 1, fully three weeks ahead of the white clover.

Do you think it would be wise to place an extra queen in a second story over each of these strong colonies with a queen excluder between and then later divide the colony in two? Could I have these extra queens shipped in packages of bees? On account of our cold springs, I would hesitate to have the queens mailed separately.

2. I have about 175 sections of two-year-old honey, candied solid, which I want to feed to the bees this spring. Should I place it over the colonies in food chambers, set it out in the open to be robbed out, or melt it and feed it to the bees?

3. I also have about fifty brood frames containing perhaps a pound each of candied honey which the extractor would not remove. Should I let the bees clean this out this spring or merely give them the frames as they are, when needed?

4. I expect to buy five packages of bees about April 15. Which do you think will do better—two-pound packages given thirty-five pounds of stores each or three-pound packages given twenty-five pounds? For the difference in cost of the packages, I figure I can afford to feed the two-pound packages an extra ten pounds.

MINNESOTA.

Answer—1. We have never had very great success in keeping two queens in one hive for the laying season. Since you desire to buy those queens in packages of bees, we would think it better to rear them separately, which would provide you with the additional colonies that you desire to make. This will be much less work than the way you propose and will reach the same end.

2. It is quite probable that you can feed it all in food chambers. I would not by any means set it outside to be robbed out, as you may feed some bees that don't belong to you, and also because bees, in robbing honey out of combs, very often damage the comb in their eagerness to tear it open. If there is any candied honey left after the bees have taken out all they can, you would probably be able to get them to use the balance of that granulated honey by sprinkling the combs slightly with warm water and giving them back to the bees.

3. It is better to give combs to the bees to be cleaned out before the crop, as this old honey might cause new honey to ferment if it was mixed with it. If they use it up, then the combs will be all right for new honey.

4. If you will read what is said about bees shipped to Manitoba, you will see that they recommend the two-pound packages as better than the three-pound. As to the amount to be fed, that must vary according to the season. The amount you mention would be ample for the most needy colonies.

HUBAM SEED

Am asking you a favor. Last year the drought here was the severest in history, destroying about all crops, including sweet clover for this year. We have been thinking some of putting in some Hubam to tide over, as practically no clover remains anywhere around here.

The local seed house here wants $12.00 per cwt., while local produced clover other than Hubam can be bought for 4 to 5 cents per pound. Do you know of any producer of Hubam that you can refer us to so as to get seed at a better price?

Would appreciate an answer by mail, as through your Journal would be later. Thanking you,

SOUTH DAKOTA.

Answer—The best thing for us to do is to ask those who have sweet clover seed for sale to advertise the fact in our columns.

President Wakefield, of Utah, Doing Original Work in Bee Breeding

J. Fleming Wakefield, new president of the Utah association, is widely known among beekeepers of the West. He is county bee inspector for Utah County, president of the county beekeepers' association, and is at present giving an extension coure in beekeeping at the Brigham Young University, Provo, Utah.

Mr. Wakefield has kept bees practically all his life, having received his first inspiration from his grandfather. He was reared in the surrounding of bees.

During his college days President Wakefield busied himself in research about bees, emphasizing bee breeding. He has been working since 1922 to develop scientifically a race of bees better suited to conditions of the mountain state. His genetical studies have also been extended to varieties of corn, and by cross pollination and technical selection he has succeeded in developing several distinct varieties.

In his work with bees he has secured specimens of imported races under authorization from the Bee Culture Laboratory at Washington. He is making careful study of them. Each queen is placed in competition with every other queen for a record of outstanding character.

J. Fleming Wakefield, new President of the Utah Association

President Wakefield's greatest ambition is to develop an ideal race of bees, and he is one of the first to use mechanical insemination in his breeding for the selection of desirable characteristics.

President Wakefield is a graduate of Brignam Young University, where he is now instructor. He majored in biology, entomology and bacteriology. Mrs. Wakefield is dean of girls at the Provo High School and teaches English. One son, Homer, is a high school teacher, and another son, Lynn, is a mechanical electrician and steam pipe fitter. The girl, Nita, is another high school teacher.

Glen Perrins.

Secretary Reed County Inspector of San Bernardino

Robert Reed, for eleven years a commercial apiarist on Highland Avenue near San Bernardino, and secretary of the San Bernardino County Honey Producers' Association, has been appointed by the Board of County Supervisors to the post of county bee inspector, a position which has been vacant since September 1, 1931.

Commenting on the appointment, County Agricultural Commissioner, John P. Coy, in whose office at the courthouse the new inspector will have headquarters, said:

"All of the beekeepers in this county will welcome Reed, who will assume his duties immediately and will inspect every hive in the county."

D. G. Sanborn.

Kentuckians Appoint Skinner President

Forty beekeepers from sixteen counties distributed throughout the state were in attendance at an enthusiastic meeting of the Kentucky State Beekeepers' Association held at the University of Kentucky on January 29.

Lander Skinner, of Winchester, was selected to head the organization during 1932, succeeding G. W. Hurst, of Flemingsburg. A. J. Walker, of Morehead, was made vice-president and W. A. Price, of the College of Agriculture, was continued in the office of secretary-treasurer.

James I. Hambleton, senior apiculturist in the Bureau of Entomology at Washington, gave two talks, one

on the treatment of American foulbrood and the other on transferring bees, and exhibited a new five-reel motion picture recently made at the bureau, which depicted in an interesting and instructive way the life cycle and habits of the bee. Prof. Price explained methods whereby the presence of European and American foulbrood might be detected in the apiary.

George W. Sailor told of inspection work in Harlan County during the past summer and stressed the significance of the enormous loss to the county each year from diseased bees.

North Carolina State Beekeepers' Meeting

The annual meeting of the North Carolina State Beekeepers' Association was held in regular session at the State College, Raleigh, North Carolina, January 21 and 22, with atendance slightly under the estimated number.

Dr. Z. P. Metcalf extended the glad hand without reserve and ordered association members to be home folks while at the college.

The president, Mr. J. W. Reid, in reviewing the work of the association spoke of the great advancement in beekeeping which North Carolina has made in the past few years under the guidance of their outstanding director, Mr. C. L. Sams. Mr. Reid emphasized the need of the continued advertising of honey.

Throughout the discussion of various local problems Mr. Sams, extension apiarist, carefully guided suggestions on timely subjects. His clear visual explanations of those intricate details increased the desire of his listeners to become better beekeepers.

In pleading for continued support of American Honey Institute, the secretary, Mr. Meacham, reviewed the splendid work of the Institute under the guidance of our greatest honey friend, Malitta D. Fischer. Mr. Meacham's task was made doubly difficult when the bank carrying association funds was reported closed. Possibly for this reason no definite action was taken on the question of Institute support.

Officers elected for the new year were: L. W. Hawks, Jacksonville, N. C., president, and F. B. Meacham, State College Station, Raleigh, N. C., secretary.

Study of Honey in California State College

The California State College of Agriculture is conducting a field study of honey, the varieties, grades, standards, size and character of containers, brands, labels, prices, seasonal demands, and other factors of the beekeeping industry. Part of

this work has been conducted in Los Angeles and a similar study will be conducted in San Francisco.

David G. Sanborn.

Wixon Inspector in Yakima County

Yakima County beekeepers, meeting in the Chamber of Commerce rooms in Yakima February 6, endorsed W. C. Wixon, of Wapato, as Yakima County bee inspector for 1932. He will work under the direction of Dr. R. L. Webster. Dr. Webster discussed the benefits of inspection, which will be supported by subscription by the apiarists at the rate of 5 to 10 cents a colony.

I. L. Neill.

Big Virginia Meet

The Virginia State Beekeepers' Association held their annual business session in the Chamber of Commerce rooms at Lynchburg, Virginia, Thursday, February 4.

In announcing this meeting a program was omitted and general conditions were adverse. Honey sales are slow, prices subnormal and the day was rainy, yet the attendance was the largest in years. Interest ran high and all beekeepers took part. Outstanding was the success of this meeting. Prof. W. J. Schoene, representing the State Department at Blacksburg, advised the association of the high regard for the beekeepers and their problems which the extension department has. Prof. Schoene says the beekeepers can have most anything they want for the asking. He emphasized the work "asking."

Preceding election of officers, the president, Mr. Henry W. Weatherford, requested election of a new president because of his connection with state work. Mr. W. A. Caldwell, secretary, also asked to be retired from his office.

The nominating committee accepted the resignations and recommended for president Mr. James Vinson, of Amherst. Mr. Vinson is a retired Y. M. C. A. secretary, whose interest in beekeeping is prompted through connection with his son, J. Philip, formerly of Colorado.

For secretary-treasurer, Mr. John H. Protheroe, Rustburg, well known beekeeper and writer. Mr. Protheroe, editor of the Virginia department in Beekeepers' Item, has received worthy praise for his intelligent presentation of timely problems and entertaining news. Mr. Protheroe has studied beekeeping methods and conditions in England (his native country), France, Switzerland, Germany and other foreign countries. Being a graduate of Oxford and gifted with the ability to interest and teach, Mr. Protheroe offers the organization that tempered link which will hold the members in close union with active interest.

For vice-president, former Secre-

tary W. A. Caldwell, Galts Mill, Virginia. Mr. Caldwell, one of Virginia's finest beekeepers, possibly heads the list of those charter members who have struggled through the years to kindle the fading flames of interest during unfavorable seasons and keep Virginia beekeeping on the map.

The association accepted by unanimous vote the recommendations of the nominating committee.

A. D. Hiett.

The Southern Conference

(Continued from page 115)

pressions of the trends which indicate increasing prosperity for the beekeeper in the days ahead. M. E. Darby read a very delightful paper about the finer things in beekeeping, the pleasures which are not connected with the sale of the product.

Dr. Herbert Osborn talked on need of research in the beekeeping field, and W. A. Ruffin presented some interesting facts on the price trend in recent years.

An entire issue of this magazine could be devoted to the program, so much interesting material was offered. Houston, Texas, was selected as the next place of meeting and the date set for December 5. J. M. Robinson, of Alabama, was elected president and H. E. Coffee, of Texas, secretary-treasurer.

Idaho Bees in Since November

The bees have not had a good flight since they were put in the pack in November, although at times it has been warm enough for them to move about within the hive. This would enable them to move to unconsumed honey.

Frank Beach, Idaho.

Report of Meeting of Honey Producers' League and American Honey Institute

(Continued from page 105)

Many individual beekeepers sent in signed statements that they would contribute on the dollar per ton basis for 1932. The bee journals whose representatives were present signified their intention to continue devoting advertising space to the Institute.

You will see that it is necessary to have the strong support of beekeepers all over the country to balance the proposed budget for 1932, which amounts to a minimum of $4,575.00. The continuance of the work of the Institute and its enlargement will actually depend on the financial support given by beekeepers. Beekeepers have responded unusually well from some states, but others have shown little activity. A

full list of subscribers for 1931 will be printed in the bee journals at an early date, an action authorized by the Board of Directors.

The following Board of Directors was elected:

Board of Directors

To represent bee supply manufacturers: H. H. Root, Medina, Ohio; L. C. Dadant, Hamilton, Illinois; George Lotz, Boyd, Wisconsin; L. W. Parks, Watertown, Wisconsin; D. D. Stover, Mayhew, Mississippi.

To represent honey bottlers and jobbers: E. G. Brown, Sioux City, Iowa.

To represent honey producers' associations organized for profit: Herman Rauchfuss, Denver, Colorado.

To represent manufacturers of honey containers (tin): C. B. Cadwallader, American Can Company, Chicago.

To represent manufacturers of honey containers (glass): G. L. Shideler, Hart Glass Company, Chicago.

To represent queen breeders and package bee shippers: David Running, Filion, Mich.

To represent associations not organized for profit: Cary W. Hartman, Oakland, California (Board of Directors, American Honey Producers' League).

The following officers were elected:

Officers

Mr. Lewis W. Parks, chairman Board of Directors.

Malitta D. Fischer (Mrs. Malitta Fischer Jensen), secretary-treasurer.

Lavonne Taylor, assistant secretary.

The Executive Committee for 1932 consists of Lewis W. Parks, Huber H. Root and E. G. Brown, who will confer with and advise Miss Fischer in her work through the year.

To secure the support of beekeepers and their associations, a Finance Committee was elected, as follows: L. C. Dadant, G. H. Cale, A. G. Woodman, David Running, R. H. Kelty, F. W. Muth and Cary W. Hartman. The Nominating Committee elected for the ensuing year is E. G. Brown, Huber H. Root and L. C. Dadant.

Miss Mary I. Barber, of the Kellogg Company, was elected as advisory member of the Board of Directors. Her long training in demonstration work of foods renders her assistance especially valuable to the Institute.

A complete report of the meeting and a financial statement will be sent to each contributor of the American Honey Institute as soon as it can be prepared.

Crop and Market Report

Compiled by M. G. Dadant

For our March crop and market report we asked reporters the following questions:

1. How much honey still on hand?
2. Is it moving?
3. Are jobbing prices improving?
4. Condition of bees?

Honey Still on Hand

Conditions seem to have improved considerably since our last report as to the amount of honey on hand both in a retail and in a jobbing way. The New England States are very well cleared up. In New York and New Jersey there is probably 20 per cent left, which is about sufficient to carry through the season. The sections having the largest amount on hand are the Atlantic Coast and the Southeastern states comprising the Virginias, Carolinas, Georgia and Florida. Particularly in Florida is there apparently a stagnation of honey markets and a large amount left on hand. Other states reporting a considerable amount on hand are Pennsylvania with 40 per cent, Texas with 25 per cent, Montana with 25 to 35 per cent, and Nevada with 40 per cent. Oregon similarly reports about 40 per cent on hand. Otherwise the amount left on hand seems to run from 20 per cent on down to none, with a number of sections reported where beekeepers are buying to supply their local demand.

As we have said many times in the past, if the short sections of the country which do not have sufficient honey on hand to supply the demand would only buy in quantities and keep their demand supplied, there would be no difficulty in disposing of all the honey each year. This is the difficulty, however: the ordinary beekeeper figuring that when he has his own crop disposed of, he can well afford to let the market go and perhaps take a little trip to some southern clime.

Honey Moving

There were only one or two instances where honey was reported as moving in a satisfactory manner, most of the reports stating that honey was moving slowly. After all, just what commodity is moving fast now? South Dakota and Oklahoma as well as eastern Iowa reported satisfactory conditions in the movement of honey. There were a number of other sections where the reports are coming in that honey is moving somewhat better in a jobbing way, although there does not seem to be very much change in the prices paid.

Jobbing Improvement

Those sections reporting a little additional demand and an improvement in the market in a jobbing way are Georgia, Mississippi, North Dakota and Idaho, with a few other sections locally reporting the same conditions. We do believe that the bulk of the carload lots has now been moved and that the demand as it develops will be clearing up some more of these lots, although it does not appear that there will be much enhancing in the price unless the quantity left on hand gets so small by the middle and latter part of March and later in the season that it is a question of getting the honey at a higher price or not getting it at all.

Condition of Bees

The condition of bees in practically all localities is from normal to extra fine. The southern sections of the country report about normal bees, with in some instances the bees building up faster than they would under ordinary conditions because of the warm weather. The central parts of the country have had extremely fine weather for bees to winter through in satisfactory shape, but many of the reporters state that undoubtedly there is going to be a shortage of stores this spring from the fact that the bees have been using up so much on account of the warm weather.

In the northern section there has been continuously cold weather and cellar-wintered bees have not suffered as would have been apparent to one located in our section. Some sections, however, are reporting pretty heavy losses on account of the extremely cold weather over a long period where their bees have been wintered out of doors and without satisfactory protection.

We believe, however, that at this date bees are in better condition than they have been for several years past and also honey plant conditions similarly are better than average. All in all, it looks like the honey crop would clean up pretty well without any very great increase in the price to the producer, and also that bees and honey plants would come out into the spring in very much more than average condition and far better than they were at this time last year.

The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

WILL EXCHANGE package bees, nuclei or queens for bee supplies. Crenshaw County Apiaries, Rutledge, Ala.

HUNDREDS of three-pound packages. Pure Italians. Spring delivery. One pound of bees free with each package. Three-pound packages go at last season's two-pound prices. Write for circular and low price. The Gooch Apiaries, Farmersville, Texas.

CAROLINA QUEENS—Line bred, three-banded, leather-colored Italians. The best honey gatherers, hardy and prolific. All orders filled promptly. If any queen is not satisfactory, please return. Not ordinary queens, but as good as the best. Ready for shipment April 20. Select (one grade only), one to fifty, 60c each; fifty or more, 55c each. Carolina Bee Co., Kenansville, N. C.

PACKAGE bees and queens in U. S. standard shipping cages at very low prices. Write to Thomson & Hodges, Anderson, Calif., or Coeur d'Alene, Idaho.

LOWER PRICES on package bees and "Queens of Quality." It will pay you to get my figures. J. F. McVay, Jackson, Ala.

ITALIAN queens, 50c. Bees, 2 lbs., $1.90; 3 lbs., $2.50. Orchard package on three frames, equal to six pounds bees, $4.00. Will trade for white honey. Homer W. Richard, 1411 Champnolle, El Dorado, Ark.

GOLDEN Italian queens as good as the best. Tested, $1.25; select tested, $2.00. Untested, about May, 85c; six, $4.80; twelve, $9.00. For larger orders, write for prices. Safe arrival, satisfaction to United States, Canada, Mexico and Cuba. Other foreign countries write for prices and terms. D. T. Gaster, R. 2, Randleman, N. C.

GOLDEN Italian queens for 1932. The big, bright, hustling kind (the kind that get the honey). Prices for April and May, 75c each; $60.00 per 100. Two-pound package with queens, $2.50 each; ten or more, $2.35 each. Three-pound, $3.15 each; ten or more, $2.90 each. Write for prices on White Giant rabbits. E. F. Day, Honoraville, Ala.

PACKAGE BEES, NUCLEI AND QUEENS—Bright, three-banded or golden Italian. The most prolific, gentle honey producers, less inclined to swarm. Untested queens, any number, 50c each; 2-lb. package and young laying queen, $2.00 each, any number; 3-lb., $2.50 each. Two-frame nuclei with queen, $2.50. We offer nuclei because we have never had disease of any kind. Furnish health certificate, guarantee safe arrival, satisfaction. Taylor Apiaries, Luverne, Ala.

MOUNTAIN Gray Caucasian queens, April and May, 1932. Write for price. Tillery Brothers, R. 6, Greenville, Ala.

MY CAUCASIANS are disease resistant, hardy, prolific. Don't be misled by directly imported stock with no selective breeding under our conditions. Queens, $1.00, June delivery. March orders, cash, 20% discount on $25.00; April, 10%. Literature. Bird's Apiaries, Odebolt, Iowa.

MR. BEEKEEPER—Write and get my prices on bees and queens. A postal card will bring it. Lowest prices possible, quality of the best, full weight of good young bees, queens as good as the best. Safe delivery guaranteed. Our losses average less than 2 per cent; made good at once. Promptness of service. O. P. Hendrix, West Point, Miss.

BEES AND QUEENS—Two pounds of bees with queen, $1.75; three pounds, $2.25, in quantities. See my large ad on page 129. H. E. Graham, Cameron, Texas.

PACKAGE BEES—Three-banded Italians. You can save money by ordering your package bees from the Little River Apiaries. Lower express charges. Bees shipped in light cages, syrup feeder in cage. Full weight and prompt service to every customer. We are prepared for shipping young bees and young queens, the kind that pay a profit the first season. Two-pound package without queen, 5 to 100, $1.50 each; two-pound package with queen, 5 to 100, $2.00 each. Three-pound package without queen, 5 to 100, $2.25 each; three-pound package with queen, 5 to 100, $2.75 each. Safe arrival guaranteed. Health certificate with every shipment. Little River Apiaries, Box 83, Gause Texas.

FOR SALE—Italian bees and queens; nothing but the best. Queens, 50 cents each. One pound of bees with young queen, $1.75; two pounds of bees with young queen, $2.75. All charges paid to your postoffice. Add 15 per cent extra to Canada. Graydon Bros., Greenville, Ala., Route 4.

APRIL QUEENS—Good Italian, untested, 60c each; ten for $5.50. D. W. Howell, Shellman, Ga.

FOR SALE

FOR SALE—175 two-story colonies, on their stands; painted hives, full sheets wired foundation. Health certificate. L. L. Ferebee, Pineland, S. C.

FOR SALE—"Old bee books for sale." John F. Hawkins, Box 203, Chester, Pa.

BARGAIN—100 colonies Italian bees; uncrowded irrigated alfalfa-sweet clover district. Colony average never less than 100 pounds. Disease not serious. Good ten-frame, painted equipment; 200 hives, 400 extracting supers, fillers for 200 comb supers, steam-electric extracting outfit, 150 pounds foundation, trucks, etc. $1450.00 takes established business. Box 1, Bigtimber, Mont.

FIFTY or more colonies of bees, mostly Italians. No disease. E. L. McDowell, Hanover, Ill.

FOR SALE—23,000 4x5x-1⅜ sections, 200 pounds extra thin section foundation, 400 glass-front shipping cases, 1400 Danz. supers with holders. Sacrifice price, $385 f. o. b. Piru, Calif. Anna R. Chadwick, Executrix, M. H. Mendleson, Estate, 426 W. Olive Ave., Redlands, Calif.

HONEY FOR SALE

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

FOR SALE—White clover honey in 60-pound cans. None finer. Satisfaction guaranteed. J. F. Moore, Tiffin, Ohio.

HONEY FOR SALE—All grades, any quantity. H. & S. Honey and Wax Company, Inc., 265 Greenwich St., New York City.

FOR SALE—Extra choice white clover honey, case or carload; also amber. David Running, Filion, Mich.

HONEY—We sell the best. Comb in carriers of eight cases each; extracted, basswood, buckwheat, sweet clover, white clover and light amber. Tell us what you can use for prices. A. I. Root Company of Chicago, 224-230 West Huron St., Chicago, Ill.

FOR SALE—Northern white, extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

WHITE clover extracted honey. Write for prices and samples. Kalona Honey Co., Kalona, Iowa.

FOR SALE—White clover comb and extracted in sixties. C. Holm, Genoa, Ill.

NEW CROP shallow frame comb honey, also section honey; nice white stock, securely packed, available for shipment now. Colorado Honey Prod. Ass'n, Denver, Colo.

CLOVER honey, choice, ripened on bees. Satisfaction guaranteed. Case or quantity. E. J. Stahlman, Grover Hill, Ohio.

FOR SALE—Sweet clover extracted honey; quality and body fine. Thomas Atkinson, Route 5, Omaha, Neb.

STOLLER'S EXCELLENT quality clover honey, comb and extracted. Unexcelled. The Stoller Apiaries, Latty, O.

HONEY FOR SALE—Keep your customers supplied with honey. We can furnish white and light amber honey at attractive prices. Packed in 60-lb., 10-lb. or 5-lb. tins. Dadant & Sons, Hamilton, Illinois.

FOR SALE—White clover honey in sixties, 7c per pound. Joseph H. Hoehn, Ottoville, Ohio.

CAR or less white extracted sweet clover and alfalfa. George Seastream, Moorhead, Minn.

FINE clover honey, extracted. Case or ton. Write amount needed and get prices. L. G. Gartner, Rowan, Iowa.

WHITE COMB HONEY—Extracted and chunk. Prices on request. One-pound sample, 15c. F. W. Summerfield, Grand Rapids, Ohio.

CLOVER honey, $8.40 case; amber, $7.20. Edward Klein, Gurnee, Ill.

CLOVER extracted honey, case or ton. Roy Littlefield, Exira, Iowa.

WHITE CLOVER honey, case, $8.00. Write for sample. Ralph Blackman, Portland, Mich.

HOWDY'S HONEY—Fine Michigan clover extracted, in new sixties. Sample free. Howard Potter, Jr., Ithaca, Mich.

FOR SALE—Amber extracted honey in new 10-lb. pails, six pails to a case. Priced to sell. May's Ranch, Meredosia, Ill.

WHITE CLOVER comb honey in eight-case carriers. C. J. Schwind, R. R. Belvidere, Ill.

AMBER fall honey, extracted; can, case or ton. E. S. Miller, Valparaiso, Ind.

UNUSUALLY fine, extra white, clover honey. Best we ever produced. Extracted, 60-lb. cans, granulated, 7 cents. Utendorfer's Apiaries, Gaylord, Minn.

FOR SALE—Fancy white comb honey, $24, eight-case lots. Lower grades at lower prices. N. B. Querin & Son, Bellevue, Ohio.

SAVE $$$$$—Write today sure for our reduced price list on honey and maple syrup, maple cream, sugar and table syrup; fully illustrated 10 items, 50 containers in various sizes and prices to save your $$$$$. Freight paid 1,000 miles. Griswold Honey Co., Madison, Ohio, U. S. A.

FOR SALE—300 cases comb honey at reduced prices. State your wants. H. G. Quirin, Bellevue, Ohio.

HONEY AND BEESWAX WANTED

WANTED—Extracted honey in sixties. Quote price. Schmidt Bee and Honey Co., R. 2, North St. Paul, Minn.

WANTED—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5 cents a pound for wax rendering. Fred W. Muth Company, 204 Walnut St., Cincinnati, Ohio.

WANTED—A car or less quantity of white honey in 60-lb. cans. Mail sample and quote lowest cash price for same. J. S. Bulkley, 816 Hazel St., Birmingham, Mich.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Hamilton, Wallace & Bryant, Los Angeles.

WANTED—Old combs and cappings for rendering. We get all the wax, charging but 4c per pound for rendering. High cash paid for wax. Ohmert Honey Company, Dubuque, Iowa.

FOR EXCHANGE

WILL TRADE one pair silver foxes for 100 2-lb. packages bees. Can ranch foxes for buyer. E. Henseler, Marshfield, Wis.

FOR SALE—Or will exchange for beeswax, 450 pounds Dadant's 5-inch wired foundation. W. M. Peacock, Mapleton, Iowa.

STANDARD Hoffman frames, manufactured from Idaho white pine, $30.00 per thousand. Prices on other supplies to match. Will trade a limited number of frames for white honey and beeswax. Inquire Thomson Honey Co., Coeur d'Alene, Idaho.

WILL EXCHANGE package bees and queens for shipment between April 1 and 23 for woodworking machinery. P. M. Williams, Mt. Willing, Ala.

WANTED

WANTED—One experienced beekeeper and one helper for season of 1932, at my Michigan place. Give age, weight, height and wages wanted in first letter. References required. David Running, Sumterville, Ala.

WANTED—Bees to work on shares. Good sweet clover location. References furnished. Brookside Apiaries, Ruthton, Minn.

WANTED—400 colonies bees. Must be clean, strong and in ten-frame hives. Edward Klein, Gurnee, Ill.

POSITION WANTED

POSITION WANTED—By qualified beekeeper. Any branch of apiculture. Anywhere. Qualified Beekeeper, West Lynn, Mass.

SINGLE MAN having several seasons' experience with bees and poultry wants employment. Paul Leo Martineau, Lena, Wis.

SUPPLIES

SAVE money with a Rietsche foundation press. Prices $14.63 to $22.92. John Stegedirk, Hubbard, Iowa.

SAFIN queen introduction cage, one, 25c; five for $1.00. Allen Latham, Norwichtown, Conn.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices. Hamilton Bee Supply Co., Almont, Mich.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE — We are constantly accumulating bee supplies, slightly shopworn; odd sized, surpluses, etc., which we desire to dispose of and on which we can quote you bargain prices. Write for complete list of our bargain material. We can save you money on items you may desire from it. Dadant & Sons, Hamilton, Illinois.

THE DADANT SYSTEM IN ITALIAN—The "Dadant System of Beekeeping" is now published in Italian, "Il Systema d'Apicoltura Dadant." Send orders to the American Bee Journal. Price $1.00.

MISCELLANEOUS

DR. STILES seriously sick since January 5. Cannot answer inquiries. J. W. Stiles, Houston, Texas.

MILKWEED—An excellent honey plant (see Pellett's book. Generous seed packet, one dime. Elizabeth Youngs, Route 1, Box 31, Howell, Mich.

PLANT VITEX THIS SPRING—Don't depend on your neighbor for a location; make one of your own. 12- to 24-in. trees, 50c each; ten or more, 30c each; 25- to 36-in. trees, 60c each; ten or more, 40c each. Vitex seed, $1.50 per ounce; trial packet (200) seeds, 25c, all prepaid. Stamps not accepted. Charles F. Mottet, Webb City, Mo.

VIKLA AUTOMATIC swarm trapper. Practical, efficient. Literature free. Vikla Manufacturing Co., Lonsdale, Minn.

TO INCREASE honey crop two-fifths, write me. Delbert E. Lhommedieu, Colo, Iowa.

WILL TRADE 160 acres valley land in Oregon and cash for bees in central states. Box A. M. B., American Bee Journal, Hamilton, Ill.

GROW VITEX TREES for beauty and bees. Twelve- to 24-inch trees, 30c each; twenty-five or more at 25c each; 24- to 36-inch trees, 50c each; twenty-five or more, 40c each, all prepaid. Seed at $1.50 per ounce. Joe Stallsmith, Galena, Kansas.

PLANS FOR POULTRY HOUSES—150 illustrations. Secret of getting winter eggs. You need this book. Write for free offer and sample copy of Inland Poultry Journal, 523 Holliday Bldg., Indianapolis, Ind.

MARBLEBOARD BINDER—For back copies of the American Bee Journal. Will hold two years. Keeps your magazines in shape for ready reference. Price only 75c, postpaid. American Bee Journal, Hamilton, Ill.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, Brockhill, London Road, Camberley, Surrey, England.

HAVE YOU any Bee Journals or bee books published previous to 1900 you wish to dispose of? If so, send us a list. American Bee Journal, Hamilton, Ill.

Honey Samples Wanted

An interesting new honey combination has been discovered by Prof. P. H. Tracy, of the Dairy Manufacturing Division of the University of Illinois. Professor Tracy is enthused over the product and thinks it has good sales possibilities, but before making definite announcements it is planned to make some further exhaustive tests.

For this purpose is needed samples of honey of distinct floral sources, preferably unheated, in one- to two-pound lots. Beekeepers wishing to cooperate may send such samples, correctly labeled as to floral source and other history of the sample, to V. G. Milum, 104 Vivarium Building, Champaign, Illinois, who is attempting to get together some distinct types of honey for the final experimental work.

Send Your Institute Honey Donations to These Receivers

These individuals and firms have agreed to take in honey donated to the American Honey Institute, sending a check to Russell H. Kelty, treasurer of the American Honey Institute, East Lansing, Michigan, for the value of the honey at the market price, less the freight:

Honey Receivers

Allen Latham, Norwichtown, Conn.

Bee-Kist Products, Inc., 8272 Jefferson Street, Phoenix, Ariz.

A. G. Woodman Company, Grand Rapids, Mich.

Dadant & Sons, Hamilton, Ill.

James Gwin, Department of Markets, Madison, Wis.

Lothrop Nursery Company, Aberdeen, S. D.

T. W. Burleson, Waxahachie, Tex.

O. S. Bare, Extension Entomologist, College of Agriculture, Lincoln, Neb.

Sioux Honey Association, Sioux City, Iowa.

H. M. Krebs, Sacramento, Calif.

George C. Barton, Meriden, N. H.

Colorado Honey Producers' Association, Denver, Colo.

Above receiver nearest you is to be notified of the number of pounds you contemplate sending in before shipment is made.

Let Honey Ride on Its Merits

By A. G. Pastian
South Dakota

Referring to your comments on page 499 of the November number, in the editorial "Low Prices," where you say that we cannot expect a greatly increased price for honey for some time, but that we can cut our marketing expenses. I certainly agree with that. We can cut out the expensive container. Have the beekeepers put their honey in five- and ten-pound pails.

I see honey in a number of styles of glass, and it seems to me the five- and ten-pound pail, and two sizes of glass, say the one-pound and two-and-one-half-pound size, will fill the bill for retail trade, and cut out so many containers.

Some producers sell 60-pound cans to retail merchants. The merchants shift it to quart jars. And what a mess they make of it! The clerks go up in the air, get fighting mad and feel like kicking a fellow out of town when he mentions honey to them.

Producers can increase profits by putting in a good honey handling outfit and using a little common sense in putting up their honey. Use a neat label and let honey ride on its merits.